INITIAL

NAVY TRAINING SYSTEM PLAN

FOR THE

SH-60R MULTI-MISSION

HELICOPTER UPGRADE

JANUARY 2000

January 2000

SH-60R MULTI-MISSION HELICOPTER UPGRADE

EXECUTIVE SUMMARY

This Initial Navy Training System Plan for the SH-60R Multi-Mission Helicopter Upgrade was developed by the Naval Air Systems Command (AIR-3.4.1.1) using the Training Planning Process Methodology. This document provides an early estimate of manpower, personnel, and training requirements to support the employment concepts currently being considered for the SH-60R. It also contains appropriate data required to make accurate decisions and assessments concerning manpower and training alternatives for the SH-60R.

The SH-60R is currently in Phase II (Engineering and Manufacturing Development) of the Weapon System Acquisition Process. The Acquisition Category assigned is ACAT 1C. A Low Rate Initial Production program review is planned for the beginning of Fiscal Year (FY) 00 and a Milestone III Program Decision Meeting for full rate production is planned for first quarter FY03. Initial Operational Capability for the SH-60R is to occur no later than fourth quarter FY02.

The SH-60R program is a mid-life upgrade that will provide critical capability improvements to U.S. Navy H-60 tactical rotary wing aircraft. The SH-60B and SH-60F helicopters will be remanufactured to a new configuration designated SH-60R. The remanufacture process will include concurrent Standard Depot Level Maintenance, Service Life Extension Program modifications, and incorporation of Engineering Change Proposals to reduce life-cycle cost. The avionics upgrade will include a new Multi-Mode Radar, Airborne Low Frequency Dipping Sonar, Electronic Surveillance Measures, Navigation, and Data Handling and Display Subsystems, and integration of Government-Furnished Equipment.

Mission areas for the SH-60R will include, but not be limited to, Undersea Warfare, Anti-Surface Warfare, Area Surveillance and Combat Identification, Naval Surface Fire Support, Search and Rescue, and traditional rotary wing support roles.

The SH-60R training program will consist of initial and follow-on training for operators and maintenance personnel. The contractor began providing SH-60R initial training for Navy test and evaluation personnel in support of Developmental and Operational Tests and continues until the present time. The Navy will provide follow-on training for SH-60R operators and organizational level maintenance technicians beginning in FY02.

Because of the similarity of the SH-60R with the legacy H-60 helicopters, introducing the SH-60R into existing Navy Helicopter Antisubmarine Squadrons-Light, and Helicopter Antisubmarine Squadrons is not expected to change existing manpower levels.

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LIST OF ACRONYMS

ACTC	Aircrew Combat Training Continuum
AD	Aviation Machinist's Mate
AE	Aviation Electrician's Mate
AFCC	Advanced Flight Control Computer
AFCS	Automatic Flight Control System
ALFS	Airborne Low Frequency Sonar
AME	Automated Maintenance Environment
AMH	Aviation Structural Mechanic (Hydraulics)
AMIST	Aviation Maintenance In-Service Training
AMS	Aviation Structural Mechanic (Structures)
AMT	Avionics Maintenance Trainer
AMTCS	Aviation Maintenance Training Continuum System
AO	Aviation Ordnanceman
ASPA	Aircraft Service Period Adjustment
ASUW	Anti-Surface Warfare
AT	Aviation Electronics Technician
ATO	Airborne Tactical Officer
AW	Aviation Warfare Systems Operator
AWS	Air Weapon System
CAI	Computer-Aided Instruction
CASS	Consolidated Automated Support System
CBT	Computer-Based Training
CMI	Computer-Managed Instruction
CMT	Composite Maintenance Trainer
CNO	Chief of Naval Operations
COTS	Commercial Off-The-Shelf
DLQ	Deck Landing Qualification
DoD	Department of Defense
DT	Developmental Test
EGI	Embedded GPS Inertial
EMCI	Enhanced Material Condition Inspection
EMD	Engineering and Manufacturing Development
ESM	Electronic Surveillance Measures
ET	Embedded Training
FAS	Flight Avionics Segment

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LIST OF ACRONYMS

FIT	Fleet Introduction Team
FLIR	Forward-Looking Infrared
FMC	Flight Mission Computer
FRS	Fleet Replacement Squadron
FY	Fiscal Year
GPS	Global Positioning System
GRL	Gross Requirements List
HS	Helicopter Antisubmarine Squadron
HIS	Human Systems Integration
HSL	Helicopter Antisubmarine Squadron-Light
IETM	Interactive Electronic Technical Manual
IFF	Identification Friend or Foe
ILSP	Integrated Logistics Support Plan
IMC	Integrated Maintenance Concept
IMD	Integrated Mechanical Diagnostics
ISAR	Inverse Synthetic Aperture Radar
ISD	Integrated Self-Defense
LAMPS	Light Airborne Multi-Purpose System
LRIP	Low Rate Initial Production
MAS	Mission Avionics Segment
MC	Mission Computer
MMH	Multi-Mission Helicopter
MMH/FH	Maintenance Man-Hours per Flight Hour
MMR	Multi-Mode Radar
MQRC	Mission Qualification Requirements Continuum
MTU	Maintenance Training Unit
NA	Not Applicable
NALCOMIS	Naval Aviation Logistics Command Management Information System
NAMTG	Naval Air Maintenance Training Group
NAS	Naval Air Station
NATOPS	Naval Air Training and Operating Procedures Standardization
NAVAIRSYSCOM	Naval Air Systems Command
NAVICP	Navy Inventory Control Point

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LIST OF ACRONYMS

NAWCAD	Naval Air Warfare Center Aircraft Division
NEC	Navy Enlisted Classification
NOBC	Navy Officer Billet Classification
NS	Naval Station
NTSP	Navy Training System Plan
NVG	Night Vision Goggles
OEM	Original Equipment Manufacturer
OPEVAL	Operational Evaluation
OPO	OPNAV Principal Official
OSI	Operational System Interface
OSP	Operation Service Period
OT	Operational Test
PEDD	Portable Electronic Display Device
PIU	Programmable Interface Units
PM	Preventive Maintenance
PMA	Program Manager, Air
POE	Projected Operational Environment
PQS	Personnel Qualification Standards
PTT	Part Task Trainer
RAST	Recovery, Assist, Secure, and Traverse
RCM	Reliability Centered Maintenance
RFT	Ready For Training
ROC	Required Operational Capability
SAR	Search and Rescue
SAS	Stability Augmentation System
SDLM	Standard Depot Level Maintenance
SERE	Survival, Evasion, Resistance, and Escape
SO	Sensor Operator
STEP	Service Tour Extension Process
TBD	To Be Determined
TD	Training Device
TECHEVAL	Technical Evaluation
TTE	Technical Training Equipment

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LIST OF ACRONYMS

T/OFT	Tactical/Operational Flight Trainer
UHF	Ultra High Frequency
USW	Undersea Warfare
VHF	Very High Frequency
WRA	Weapon Replaceable Assembly
WST	Weapon System Trainer

January 2000

SH-60R MULTI-MISSION HELICOPTER UPGRADE

PREFACE

This is an update to the Initial Navy Training System Plan (NTSP) for the SH-60R Multi-Mission Helicopter (MMH) Upgrade dated May 1999. It was developed to explore the various employment alternatives currently under consideration for the SH-60R. Since it is still relatively early in the acquisition process, some definitive data was unavailable and therefore not included in this update.

This Initial NTSP is a product of the Training Planning Process Methodology. It is intended for use as a planning document to provide manpower, personnel and training requirement summaries for operating and maintaining the SH-60R helicopter.

January 2000

PART I - TECHNICAL PROGRAM DATA

A. TITLE-NOMENCLATURE-PROGRAM

1. Nomenclature-Title-Acronym. SH-60R Multi-Mission Helicopter Upgrade

2. Program Element. 0604212N

B. SECURITY CLASSIFICATION

1. System Characteristics ..... Confidential
2. Capabilities ..... Unclassified
3. Functions ..... Unclassified

C. MANPOWER, PERSONNEL, AND TRAINING PRINCIPALS

OPNAV Principal Official (OPO) Program Sponsor..... CNO (N863C)

OPO Resource Sponsor ..... CNO (N880E3)

Developing Agency…..... NAVAIRSYSCOM (PMA299)

Training Agency… ..... CINCLANTFLT (N721)
CINCPACFLT (N73)
CNET (ETE322)

Training Support Agency…..... NAVAIRSYSCOM (PMA205)

Manpower and Personnel Mission Sponsor ..... CNO (N12)
NAVPERSCOM (PERS-4, PERS-404)

Director of Naval Training ..... CNO (N7)

D. SYSTEM DESCRIPTION

1. Operational Uses. The SH-60R MMH Upgrade will provide the U.S. Navy with a common air vehicle that will enhance capabilities in both the Light Airborne Multi-Purpose System (LAMPS) MK III and carrier-based Undersea Warfare (USW) mission areas.

The primary missions of the SH-60R will be USW and Anti-Surface Warfare (ASUW). Secondary missions will include Anti-Air Warfare, Search and Rescue (SAR), Vertical

Replenishment, Naval Surface Fire Support, Electronic Surveillance Measures (ESM), Amphibious Warfare, Airborne Mine Counter Measures, logistics support, medical evacuation, communications relay, Anti-Surface Surveillance, and Targeting/Intelligence and Warning.

The SH-60R will provide a remote platform for the processing of acoustic and non-acoustic sensor information and the deployment of sonobuoys and torpedoes. Additionally, the aircraft will be designed to employ a legacy Hellfire Launcher and Forward-Looking Infrared (FLIR) sensor with an integrated laser designator with the capability to launch and guide Hellfire missiles. The SH-60R will have the capability to detect, classify, and localize submerged submarines utilizing the Airborne Low Frequency Sonar (ALFS) dipping sonar. In near real-time, it will detect and report contact track data, contact classification, contact emission data, location, course, speed, hostile actions, and intent. The SH-60R will also serve as an elevated platform for Radar and ESM to support Penguin missile launches. The aircraft avionics equipment will be designed to interface with the shipboard processing equipment and display unit via an electronic data link.

When operating as part of the LAMPS MK III ship/air weapon system, the ship/helicopter team concept is the primary mode of operation. When operating from the aircraft carrier (or non-suitably equipped surface combatant), or when operations place the helicopter out of data link communications with the ship, the helicopter is capable of independent USW/ASUW detection, redetection, localization, classification, and attack.

2. Foreign Military Sales. There are currently no plans for Foreign Military Sales of the SH-60R helicopter.

E. DEVELOPMENTAL TEST AND OPERATIONAL TEST. The Naval Rotary Wing Aircraft Test Squadron located at the Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, Maryland, will be responsible for and will conduct the Technical Evaluation (TECHEVAL) for the SH-60R. Air Test and Evaluation Squadron One at NAWCAD Patuxent River will conduct Operational Evaluation (OPEVAL) and as such, will be responsible to operationally test the SH-60R Weapon System and determine whether the system can accomplish the LAMPS MK III and carrier-based missions while satisfactorily resolving all critical operational issues. Initial Operational Capability for the SH-60R is to occur no later than fourth quarter Fiscal Year (FY) 02. Table 1 displays the SH-60R Integrated Test Program schedule.

TABLE 1 - SH-60R DEVELOPMENTAL TEST AND OPERATIONAL TEST SCHEDULE

TEST	DATE	STATUS	COMMENTS
Developmental Test (DT)-IIA	4TH Quarter (Qtr) FY98	Complete	ALFS Operational Test (OT)-IIA
DT-IIB	3RD Qtr FY00	Pending	Low Rate Initial Production (LRIP)

TABLE 1 - SH-60R DEVELOPMENTAL TEST AND OPERATIONAL TEST SCHEDULE			
TEST	**DATE**	**STATUS**	**COMMENTS**
			Decision
DT-IIC	1ST Qtr FY01	Pending	LRIP (2ND Qtr FY02)
DT-IID	1ST Qtr FY02	Pending	AQS-22 TECHEVAL
DT-IIE	3RD Qtr FY01	Pending	Milestone III Decision/TECHEVAL
OT-IIA	1ST Qtr FY01	Pending	1ST Qtr FY01
OT-IIB	3RD Qtr FY00	Pending	
OT-IIC	2ND Qtr FY01	Pending	AQS-22 OPEVAL
OT-IID	4TH Qtr FY02	Pending	OPEVAL

F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED. The SH-60R will replace all SH-60B and SH-60B Block I helicopters in the active Navy Helicopter Antisubmarine Light (HSL) squadrons. The SH-60R will also replace all SH-60F and SH-2G helicopters in the active and reserve Navy HSL and Helicopter Antisubmarine Squadrons (HS).

G. DESCRIPTION OF NEW DEVELOPMENT

1. Functional Description. The SH-60R will be a remanufactured SH-60B and SH-60F single main rotor, twin-engine helicopter. The basic H-60 airframe, engines, transmissions, and rotor systems will remain intact but will be enhanced through the Standard Depot Level Maintenance (SDLM), Service Life Extension Program, and Engineering Change Proposal processes. The SH-60R will have a 20-degree tractor-type canted tail rotor, a controllable stabilator, conventional fixed landing gear, an external cargo hook, a rescue hoist, and bomb racks for carrying and launching external stores. In addition, it will be equipped with a flight-rated auxiliary power unit, a sonobuoy-launch system, an anti-ice system, a fire-extinguishing system, an environmental control system, an Automatic Flight Control System (AFCS), updated for ALFS, a single point pressure refueling system, and a helicopter in-flight refueling system. The main rotor blades and tail pylon will be capable of folding for storage.

The SH-60R will be compatible with ships equipped with a Recovery, Assist, Secure, and Traverse (RAST) system. In addition, the helicopter will operate on non-RAST equipped surface combatants and a variety of other air capable naval ships.

a. Avionics. The SH-60R avionics upgrades are intended to provide enhanced mission performance through new or modified avionics. These upgrades will consist of the following additions and modifications:

(1) Radar. A new AN/APS-147 Multi-Mode Radar (MMR) will be installed on the SH-60R. The MMR will provide multiple modes of operation including search, Inverse Synthetic Aperture Radar (ISAR) imaging, small target and periscope detection, weather, and navigation modes.

(2) AN/AQS-22 Sonar. The AN/AQS-22 is a state-of-the-art dipping sonar that will be integrated into the SH-60R. The AN/AQS-22 will initially employ the Commercial Off-The-Shelf (COTS) Acoustic Processor for acoustic processing. The AN/AQS-22 will provide onboard environmental data acquisition, active acoustic detection, passive acoustic detection and classification, acoustic signal analysis, and underwater communications. Existing sonobuoy capabilities will be enhanced with the addition of concurrent processing modes with multiple processing options. The AN/AQS-22 will consist of a retrievable cable-suspended acoustic transducer, reeling machine, reeling machine control unit, signal processor, and associated interface units.

(3) Signal Processor. A newly developed COTS Acoustic Processor and associated signal processing software will be installed to process acoustic data for the AN/AQS-22 and sonobuoy receivers.

(4) Control and Display Subsystem. The Control and Display Subsystem for the Air Weapons System (AWS) will be greatly improved by the integration of color-active liquid crystal multifunction displays, programmable legend keysets, and an advanced technology display driver with multifunction displays.

(5) Communications Subsystem. The Communications Subsystem will provide intercom links (microphones and headsets) among the crewmembers and provide external communication functions. These external functions include Line-of-Sight Very High Frequency (VHF) and Ultra High Frequency (UHF) communication and Satellite Over-the-Horizon communication. The Communications Subsystem also provides audio routing capabilities based on inputs from other systems, which are integrated through the Communication Subsystem's Audio Management Computer.

(6) Electronic Surveillance Measures Subsystem. The AN/ALQ-210 ESM subsystem will provide rapid threat assessment and passive location to enhance crew survivability and situational awareness. Interface with the shipboard Combat Direction System and the shipboard Electronic Warfare system (AN/SLQ-32) will remain identical to the current LAMPS Block I System, ensuring downward compatibility.

(7) Integrated Mission Processor. As part of the SH-60R integration, the functions currently performed by Digital Data Computer 1 (often referred to as Standard Airborne Computer 1) and the display driving functions of the Converter Multiplexer (SH-60B only) will be combined into a single Weapon Replaceable Assembly (WRA). The mission and display software formerly located in the LAMPS AN/AYK-14 (the Aircraft Operating Program) is installed in the SH-60R Mission Computer (MC) and Flight Mission Computer (FMC). The MC is unique to the

SH-60R and controls sensor and tactical displays. The FMC is common with the CH-60S and drives flight displays in the Common Cockpit.

(8) Navigation Subsystem. The Navigation Subsystem will include incorporation of the Global Positioning System (GPS) and Inertial Navigation System data embedded in one hybrid solution, also referred to as Embedded GPS Inertial (EGI) Navigation System. This system will provide precise helicopter state data (position, velocity, acceleration, and time). This basic flight information will be complemented with Long Range Navigation data from a variety of sensors to aid in determining guidance and flight direction queues for the operators. The presentation of this data is accomplished using digital displays, presenting critical flight information with navigation and guidance data in concise, integrated display formats.

(9) Identification Friend or Foe Subsystem. The AN/APX-100 Identification Friend or Foe (IFF) Subsystem will provide Air Traffic Control Radar Beacon System and MK XII IFF capabilities. The transponder will be controlled by the primary computer using the MIL-STD-1553B Data Bus, thus integrating it into the MMH Operational System Interface (OSI).

(10) Mission Stores Capability. The SH-60R system will have significantly more capability to accept and operate with externally mounted mission stores. As part of the upgrade, the AWS will be modified to include a tailored MIL-STD-1760/MIL-A-8591 stores location. This stores location will support the integration of a variety of stores including FLIR receiver and weapons systems with MIL-STD-1760 interfaces. The integration of avionics subsystems attached at a mission store station will be accomplished by hardware and software contained in the MC and the Programmable Interface Units (PIU). The PIU permits local processing at the stores station for individual stores and permits flexibility in load out. The PIU is being developed independently on the SH-60R program.

(11) Enhanced Operator System Interface. In order to provide a more efficient operator and avionics interaction environment, the AWS OSI has been significantly redesigned for the SH-60R.

(12) Armament Subsystem. The SH-60R will employ a new Armament Subsystem with the capabilities to accommodate the Hellfire (AGM-114B and AGM-114K) and Penguin (AGM-119B) missile systems, along with MK-46, MK-50, and MK-54 torpedoes. The SH-60R will also be able to carry and individually select up to 25 sonobuoys (and other pneumatically launched stores) depending on aircraft mission and configuration.

(13) Integrated Self-Defense. The Integrated Self-Defense (ISD) subsystem will provide threat detection, identification, warning, and countermeasures capabilities. This system is also integrated within the AWS, to provide situational awareness to the aircrew as well as manual, semi-automatic, and/or fully automatic modes of operation to enhance countermeasures effectiveness. The ISD subsystem also provides Missile Detection/Missile Jamming, Radar Warning, Laser Detecting, Countermeasures Dispensing, Self-defense Data Processing, and ISD Control.

(14) Wiring and Cabling. Required modifications in WRAs and their locations throughout the avionics system will result in a significant impact to system wiring and cabling. To provide for future system mission expansion, flexibility, and emerging technologies, all stores station will be wired for a MIL-STD-1760 interface and include a PIU. This interface will provide power and signals (both digital and analog, including video) and a MIL-STD-1553 Data Bus interface definition for store-mounted avionics, and will be adaptable to a wide variety of interface needs.

(15) Avionics Cooling. Changes in mission requirements to spend a much greater percentage of each mission in a low altitude hover require upgraded water, salt, and particle separators to prevent heavily salt laden external ambient air from entering avionics system cooling.

b. Airframe. The airframe modifications listed below will be required as part of the SH-60R Upgrades:

(1) Utility Hydraulic System. A Utility Hydraulic System similar to the one installed on the SH-60F will be incorporated into the SH-60R as an independent system to operate the sonar reeling machine and rescue hoist. It will be mounted on the right rear quarter of the main transmission and consist of a hydraulic pump, reservoir manifold, main transmission oil cooler, and distribution system.

(2) Antennas and External Mounted Equipment. The modifications for SH-60R antennas and external mounted equipment listed below will be required as part of the SH-60R Upgrades:

(a) Multi-Mode Radar Antenna. The new MMR Antenna will be located in the same location as on the SH-60B helicopter. New mounting provisions will be required to provide for tighter alignment accuracy.

(b) Electronic Warfare Support Measures Antennas. The four SH-60R Electronic Warfare Support Measures antennas will be mounted in the same general locations as on the SH-60B helicopter. New mounting provisions are required to provide for tighter alignment accuracy.

(c) Global Positioning System Antenna. A new GPS Antenna will be installed in the same location as the SH-60B antenna.

(d) Missile Warning Sensor Units. The forward Missile Warning Sensors will be relocated to mount in the new forward ESM fairings. The aft Missile Warning Sensors will be installed on the trailing edge of the tail pylon.

(e) Satellite Communications Antenna. The Satellite Communications Antenna will be installed in the location previously occupied by the upper VHF/UHF antenna. The VHF/UHF antenna will be relocated to the starboard side access door.

(f) Dispenser Pods. New installations are required to mount the new AN/ALE-47 Dispenser Pods to optimize their effectiveness with the new advanced expendables. The dispensers will be aimed forward, but also outward and downward.

(g) Laser Detector Sensor Units. New installations will be required for the Laser Detector Sensor (LDS) units. The two forward sensor units will be located near the top aft edge of the pilot and copilot doors. The two aft sensor units will be located in the transition section.

(h) Infrared Countermeasures. The existing provisions on the SH-60B for the installation of the upper and lower Infrared Countermeasure Transmitters will be retained and utilized for the new system installation.

(3) Nose Compartment. The SH-60R Nose Compartment will contain the new Advanced Flight Control Computer (AFCC), Flight Management Computer, EGI, GPS Power Divider, AN/ALE-47 Countermeasures Programmer, and the AN/ALE-47 Sequencer. The Visual Information Display System Signal Data Converters, the Stability Augmentation System (SAS) Amplifier, Radar Altimeter Receiver Transmitter, and AFCC test point panel will be retained in the nose compartment.

(4) Instrument Panel. General arrangement of the Instrument Panel will be 60.75 inches wide and is laid out into three distinct sections. These sections are the pilot's flight and mission instruments, Airborne Tactical Officer (ATO) flight and mission instruments, and the back-up/shared instruments in the center of the panel. The wide instrument panel allows for optimized glass size on displays and does not additionally degrade visibility through chin windows. All instruments are Night Vision Goggles (NVG) compatible.

(5) Center Console. The Center Console general arrangement is to use a 39.38-inch long console (STA 211.12-STA 250.50). The ATO installation may implement the FLIR contingency kit installation. The pilot Hand Control Unit installation will have a quick collapsible feature for pilot egress. All control panels will be NVG compatible.

(6) Cabin Floor. All new 300 pound per square foot panels will be employed throughout the cabin area.

(7) Sensor Operator Console. A new Sensor Operator (SO) Console will be installed. The MC, MMR, ESM, Data Link, and other SH-60R units will be installed in the new SO Console. The SO Console will include a flat panel display surrounded by various system control panels. These will include a new reeling machine control panel, a radar control panel, radio and intercom control panels, an ISD control panel, and SO keyset. Located above the display will be KY-58 or KY-100 speech security equipment and Hand Control Unit.

(8) Sonobuoy Launcher. A pneumatic sonobuoy launcher will be installed in the SH-60R. It will be located approximately three inches outboard to allow for space

required by other cabin installations. This will require a redesigned rack for supporting the launcher and a fairing for the external portion of the launcher.

(9) AN/AQS-22 Sonar Equipment Rack. The AN/AQS-22 Sonar Equipment will be installed in a new rack located along the forward starboard cabin wall. The equipment in the rack will include the Sonar Transmitter/Receiver, Acoustic Processor, Power Hardover Unit, and two 4-channel sonobuoy receiver WRAs.

(10) AN/AQS-22 Sonar Reeling Machine and Pedestal. The pedestal structure and reeling machine will be located in the aft section of the cabin and rotated off centerline to the starboard side. The AN/AQS-22 Sonar Reeling Machine receives hydraulic power from the utility hydraulic pump system that must be installed in the SH-60R.

(11) AN/AQS-22 Sonar Funnel and Transducer Housing. A funnel assembly will be mounted in the existing cargo hook cavity and will serve as a guide for the lowering and raising of the ALFS transducer. When the funnel and sonar transducer are installed, the cargo hook will be removed. The transducer housing will attach directly to the funnel assembly preventing any of the environmental hazards associated with the dipping sonar from entering the cabin.

(12) Passenger and Observer Seats. A passenger seat will be located against the starboard cabin wall forward of the cabin door. Provisions for an observer seat will be located adjacent to the SO seat and forward of the AN/AQS-22 Sonar Reeling Machine. New floor panels will have a provision for a complement of passenger seats for a transport mission. A jettisonable access panel over the sonobuoy launcher aperture will allow for additional egress during this secondary mission.

(13) Alternate Mission Cabin Arrangements. The proposed cabin arrangements for the SH-60R provide greatly enhanced mission flexibility. All racks and support structures with the exception of the SO console (i.e., sonobuoy launcher, ALFS rack, funnel, transducer housing, reeling machine, and pedestal) will have the capability to be readily removed to allow for easier reconfiguration. All other mission capabilities such as MMR, ESM, Data Link, etc., are available for all SH-60R missions.

(14) Extended Weapons Pylon. An Extended Weapons Pylon will be added to the right side of the SH-60R. These weapons pylons will use the BRU-14/A bomb rack for all external stores, including Penguin Missile, MK-46, MK-50, and MK-54 torpedoes, the 120-gallon auxiliary fuel tank, the SLAM/Walleye Data Link Pod, and the M299 Hellfire missile launcher.

(15) Integrated Mechanical Diagnostics. The SH-60R will incorporate an onboard Integrated Mechanical Diagnostics (IMD) system for airborne and ground helicopter health usage monitoring.

(16) Night Vision Goggles Capability. The SH-60R will be fully NVG compatible. This capability will be a carry-over from the CH-60S common cockpit design.

2. Physical Description. Table 2 contains the principal SH-60R aircraft dimensions.

TABLE 2 – SH-60R DIMENSIONS	
COMPONENT	**DIMENSION**
Main Rotor	53’ 8” diameter (four blades)
Tail Rotor	11’ diameter (four blades)
Aircraft:	
Operating Length / Folded Length	64’10” / 40’10’’
Operating Height / Folded Height	17’2” / 13’5”
Fuselage Length / Width	50’ / 7’9’’
Ground Clearance	11.2”

3. New Development Introduction. The SH-60R will be introduced to the U.S. Navy as a remanufactured SH-60B and SH-60F helicopter.

4. Significant Interfaces. The SH-60R cockpit and communication and navigation equipment package will be common with the U.S. Navy CH-60S helicopter. The two platforms will share existing support infrastructure, (i.e., technical publications, support equipment, training pipelines, Training Devices (TD), spares) to the maximum extent to avoid further requirements for support infrastructure. The Combat Direction System software, which provides the data processing necessary to support the shipboard tactical command and control functions for the SH-60R, does not require updating for the new capabilities provided by the SH-60R upgrades. The ISAR image data control function is a coordinated manual function between the AWS and LAMPS Ship Segment operators.

5. New Features, Configurations, or Material. The systems comprising the SH-60R helicopter do not drive a technological breakthrough, but utilize state-of-the-art hardware and data processing technology. The SH-60R community will utilize the Automated Maintenance Environment (AME) system. AME integrates off-aircraft diagnostics with computer-aided maintenance techniques for maintaining naval aviation electronic, mechanical, and structural equipment. AME integrates a computer-aided maintenance system built on the existing Naval Aviation Logistics Command Management Information System (NALCOMIS) for organizational level maintenance activities, the standard Naval aviation maintenance data collection and business process system. AME system key elements are:

a. Automated Debrief Capability. The Automated Debrief Capability links expert system diagnostics, Built-In Test data via the SH-60R Data Storage Unit, and pilot and/or

maintainer observations to generate more precise maintenance task information for fault isolation and repair.

b. Interactive Electronic Technical Manuals. Interactive Electronic Technical Manuals (IETM) provide users with maintenance information including fault reporting for isolation and repair. IETMs will provide task instruction with pertinent graphics, based on the discrepancies identified in the Automated Debrief. IETMs will provide technical manuals that offer equivalent or better functionality than paper in a medium easier to manage at the fleet user level. In addition, IETMs will reduce publication and training, production, and distribution costs. IETMs should reduce maintenance repair time through integration with NALCOMIS, addition of electronic logbook capabilities, insertion of expert systems modules, and incorporation of IMD technology.

c. Portable Electronic Display Device. The Portable Electronic Display Device (PEDD) will be used to present the IETMs maintenance task information to the user at the work site (the aircraft). The PEDD is initially connected to the NALCOMIS network to receive both the discrepancy data derived from the debrief, as well as the maintenance information to perform the task. The PEDD is then disconnected from the network and taken to the job site where the configuration-sensitive IETMs work package is displayed to guide the technician through the repair, and at the same time collect data related to the repair process (i.e., tasks performed, times, and parts removed and installed). The PEDD is then reconnected to the network to upload the work status including the automatic completion of the Maintenance Action Form.

H. CONCEPTS

1. Operational Concept. A crew of three, comprised of two Pilots and one Naval Aircrewman will operate the SH-60R. One Pilot will control the operation of the helicopter, and the other Pilot, called the ATO, will conduct the mission. The Aircrewman will operate the radar and acoustic systems. A second Aircrewman will be added to perform as a rescue swimmer during SAR and other missions as needed. The SH-60R will operate in a variety of mission areas that are consistent with operational uses stated in Paragraph D.1. and as outlined in the applicable Required Operational Capability (ROC) and Projected Operational Environment (POE) document.

2. Maintenance Concept. The maintenance concept for the SH-60R is based on three levels of maintenance prescribed in the Naval Aviation Maintenance Program Manual, OPNAVINST 4790.2G: organizational, intermediate, and depot. The SH-60R traditional maintenance concept is in the process of changing to a new methodology of aircraft maintenance. This new method is the Integrated Maintenance Concept (IMC).

a. Integrated Maintenance Concept. IMC is achieved through the application of Reliability Centered Maintenance (RCM) principles that change the focus from a restoration maintenance program, i.e., Aircraft Service Period Adjustment (ASPA) and SDLM, to a preventive maintenance program. This concept will repackage all H-60 Preventive Maintenance

(PM) tasks to integrate organizational, intermediate, and depot level maintenance to be performed on-site between deployments.

Organizational level maintenance activities will continue to perform PM while deployed. However, the bulk of the inspections and PM tasks will be performed in port by integrated maintenance teams. The IMC team may include a combination of organic and contractor maintenance personnel. IMC will require depot artisans to be permanently assigned to H-60 home sites. Over a specific period of time, they will perform SDLM-like tasks on aircraft, but with more frequency than the current eight to 11 year SDLM cycle.

IMC will be divided into six stages over six years. The areas of PM for each stage will include:

- Stage 1 - main rotor pylon and flight controls
- Stage 2 - main rotor pylon and cabin
- Stage 3 - main rotor pylon, tail pylon, nose section, and stabilator
- Stage 4 - main rotor pylon; cabin, and flight controls
- Stage 5 - main rotor pylon, transition section, and tail cone
- Stage 6 - main rotor pylon, cabin, and strip and paint aircraft

The criteria for H-60 helicopters entering IMC is that the aircraft must be in good material condition prior to acceptance, then IMC maintains that good material condition. During the transition from ASPA/SDLM/RCM to IMC, it is necessary to perform restoration maintenance on aircraft in poor material condition. To do this, we rely on the present SDLM program and the Service Tour Extension Process (STEP).

b. Service Tour Extension Process. The STEP program is an in-service inspection and repair process that is designed to improve the material condition of the aircraft such that the aircraft will not need a SDLM prior to induction into the SH-60R remanufacture program. The STEP requirement is focused on the restoration of the airframe structure, flight controls, fixed provisions, and wiring. It will also include an exterior paint condition assessment. The decision to strip and paint the aircraft will be made once the assessment is completed.

c. Enhanced Material Condition Inspection. Enhanced Material Condition Inspection (EMCI) is required for all aircraft undergoing STEP, including initial re-evaluation and annual structural inspection until they are remanufactured into the SH-60R configuration. The inspection will be used to gather data that will be analyzed to assess an Operation Service Period (OSP) for future STEP aircraft and will also support RCM analysis. The OSP of STEP aircraft is initially estimated to be six years but will be adjusted up or down depending on the results of the initial EMCI. The EMCI program will also be used to determine the appropriate time for the aircraft to enter the SH-60R remanufacture program.

3. Manning Concept. Based on a cursory analysis of the operator and maintainer tasks expected to be associated with the SH-60R and its equipment, these tasks have been determined to be within the capabilities of the Navy's existing enlisted rating and officer Navy Officer Billet

Classification (NOBC) structures. As a result, it is estimated that no new enlisted ratings or NOBCs will be required to support the SH-60R. As such, the operator and maintainer manpower for the SH-60R will come from existing Navy HSL and HS squadron manpower with no increase in end strength anticipated.

a. Estimated Maintenance Man-Hours per Flight Hour. Operator requirements for SH-60R pilots and enlisted aircrewmen are based on the crew ratio and seat factors found in the applicable ROC/POE documents for activities scheduled to receive the SH-60R. The Maintenance Man-Hours Per Flight Hour (MMH/FH) used to estimate the SH-60R enlisted organizational level maintenance manpower requirements are based on historical data taken from the SH-60B, SH-60F, and HH-60H aircraft. This is due to the lack of precise equipment design parameters for the equipment and systems that will be installed in the SH-60R helicopter. Table 3 is a comparison of the MMH/FH by work center from the existing HH-60H, SH-60B, and SH-60F helicopters to the SH-60R.

TABLE 3 – ESTIMATED MAINTENANCE MAN HOURS PER FLIGHT HOUR BY WORK CENTER

	AIRCRAFT			
WORK CENTER	**HH-60H**	**SH-60B**	**SH-60F**	**SH-60R**
110	4.19	3.92	5.93	3.92
120	3.97	4.53	7.82	4.53
130	1.41	1.39	1.71	1.39
210	2.25	2.87	2.49	3.66
220	2.28	2.72	2.46	2.82
230	4.06	3.91	4.13	3.98
310	2.37	2.63	2.82	2.63
TOTAL	20.52	21.96	27.37	22.93

Note: The above MMH/FH figures were computed by the Naval Air Systems Command (NAVAIRSYSCOM), AIR 3.4.1.1, utilizing Corrective Maintenance (CM) and PM model data.

b. Recommended Qualitative and Quantitative Manpower Requirements

(1) Qualitative Manpower Requirements. Introduction of the SH-60R into existing HSL and HS activities will generate the need for new Navy Enlisted Classification (NEC) codes for the SH-60R Enlisted Aircrewman and Aviation Electronics Technicians (AT). A new additional qualification designation code will be necessary to identify SH-60R pilots.

Existing HSL squadrons currently have SH-60B helicopters and HS squadrons have SH-60F helicopters assigned. The SH-60R will replace both of these helicopters. Because of the common aircraft (SH-60R) that the HSL and HS communities will share, a new common NEC will be required to identify SH-60R Aircrewmen. This new NEC will merge the Aircrewman NEC for the HS and HSL communities. Table 4 displays the current H-60 Enlisted Aircrewman NEC structure along with the proposed SH-60R enlisted aircrew NEC structure.

TABLE 4 - CURRENT AND PROPOSED SH-60R ENLISTED AIRCREWMAN NECs

RATING	WARFARE COMMUNITY	NEC	
		CURRENT	PROPOSED
Aviation Warfare Systems Operator (AW)	HSL	7873 (SH-60B)	78XX
AW	HS (Tentative)	7876 (SH-60F)	

Because of the differences in the avionics suites of the SH-60B, SH-60F, HH-60H, and the emerging CH-60S, there are currently three types (qualities) of H-60 ATs.

- SH-60B aircraft..... NEC 8376/8876
- SH-60F/HH-60H aircraft..... NEC 8378/8878
- CH-60S aircraft (pending)..... NEC 83XX/88XX

Two new NECs (hereafter referred to as 88XX/83XX) will be required to identify SH-60R Electronics Systems Organizational Level Maintenance Technicians (Initial/Career) as a result of the even greater differences in the avionics suite of the SH-60R and to separate and identify the type training an individual has achieved. The other ratings (i.e., Aviation Electrician's Mate (AE), Aviation Structural Mechanic (Hydraulics) (AMH), Aviation Structural Mechanic (Structures) (AMS), Aviation Machinist's Mate (AD), and Aviation Ordnanceman (AO)) will not require new NECs. Their associated systems are very similar to the legacy H-60 helicopters. As a result, once trained, they will be awarded the existing NEC of 8878 (Initial) and 8378 (Career). Intermediate level H-60 NECs will remain unchanged. Tables 5, 6, and 7 display the current H-60 maintenance NEC structure along with the proposed CH-60S and SH-60R maintenance NEC structures.

TABLE 5 - CURRENT H-60 TYPE/MODEL/SERIES NECs					
SH-60B			**SH-60F/HH-60H**		
RATE	**NEC**		**RATE**	**NEC**	
	E-5 and above (Career)	**E-4 and below (Initial)**		**E-5 and above (Career)**	**E-4 and below (Initial)**
AT	8376	8876	AT	8378	8878
AD	8378	8878	AD	8378	8878
AE	8378	8878	AE	8378	8878
AMS	8378	8878	AMS	8378	8878
AMH	8378	8878	AMH	8378	8878
AO	8378	NA	AO	8378	NA

TABLE 6 – PROPOSED CH-60S NECs		
RATE	**NEC**	
	E-5 and above (Career)	**E-4 and below (Initial)**
AT	83XX	88XX
AD	8378	8878
AE	8378	8878
AMS	8378	8878
AMH	8378	8878
AO	8378	NA

TABLE 7 - PROPOSED SH-60R NECs		
RATE	**NEC**	
	E-5 and above (Career)	**E-4 and below (Initial)**
AT	83XX	88XX

TABLE 7 - PROPOSED SH-60R NECs		
RATE	**NEC**	
	E-5 and above (Career)	**E-4 and below (Initial)**
AD	8378	8878
AE	8378	8878
AMS	8378	8878
AMH	8378	8878
AO	8378	NA

(2) Quantitative Manpower Requirements. Based on analysis performed by NAVAIRSYSCOM (AIR 3.4.1.1), the introduction of the SH-60R into existing HSL and HS activities is not expected to change existing manpower levels. Refer to the applicable HSL and HS squadron Activity Manpower Documents for information on SH-60R manpower.

(3) Fleet Introduction Team. The H-60R/S Fleet Introduction Team (FIT) has been established at Naval Air Station (NAS) North Island, California. The primary purpose of the FIT will be to function as the joint Type Commander single point of contact for all fleet introduction issues. The FIT will also coordinate fleet inputs and provide guidance to program offices, manage operations, Naval Air Training and Operating Procedures Standardization (NATOPS) Model Manager, Fleet Readiness Squadron (FRS) Curriculum Model Manager, maintenance, supply, and training initiatives. The H-60R/S FIT has unique Unit Identification Codes (55628 PAC and 32409 LANT) and reports directly to Commander, Naval Air Force, U.S. Pacific Fleet, and is additional duty to Commander, Naval Air Force, U.S. Atlantic Fleet. Table 8 displays the draft billet file for the H-60R/S FIT.

TABLE 8 - H-60R/S FLEET INTRODUCTION TEAM			
BSC	**BILLET TITLE**	**RANK**	**DESIGNATOR/NEC**
00200	FIT Project Officer	CAPT	1312
00300	Assistant Project Officer	GS-13	NA
00400	Administration Supervisor	YNC	0000
00500	Administration Clerk	YN3/GS-4	0000/NA
00600	Education Specialist	GS-11	NA
00700	Logistics Management Specialist	GS-11	NA

TABLE 8 - H-60R/S FLEET INTRODUCTION TEAM			
BSC	**BILLET TITLE**	**RANK**	**DESIGNATOR/NEC**
00800	NATOPS	LT	1312
00900	NATOPS/SAR Crew Chief	AWC	7815/9502
01000	Flight Instructor Pilot/Training Officer	LT	1312
01100	Maintenance Officer	LCDR	6330
01200	Aircraft/Avionics Officer	LT	6380
01300	Avionics Technician	ATC	8378
01400	Power Plants Technician	ADC	8378
01500	Electrical/Instrument Technician	AEC	8378
01600	Weapons/Ordnance Technician	AOC	8378
01700	Structures Technician	AMSC	8378
01800	Technical Support	AKC	8012
01900	Technical Publications/Reports	AZ1	6315

4. Training Concept. The SH-60R Training Program will consist of initial and follow-on training for operators and maintenance personnel. The contractor will provide initial operator and maintenance training for Navy Test and Evaluation Personnel in support of DT and OT. The contractor will also develop and conduct initial training for Naval Air Maintenance Training Group (NAMTG) instructors, FRS instructors, and an initial cadre of Fleet personnel. SH-60R follow-on training will be provided through existing courses that have been modified to include SH-60R data as well as new courses that will have to be developed.

The established training concept for most aviation maintenance training divides "A" school courses into two segments called Core and Strand, and many organizational level "C" school courses into separate Initial and Career training courses. "A" school Core courses include general knowledge and skills training for the particular rating, while "A" school Strand courses focus on more specialized training requirements for that rating and specific aircraft or equipment, based on the student's fleet activity destination. Strand training immediately follows Core training and is part of the "A" school. Upon completion of Core and Strand "A" school, graduates attend the appropriate Initial "C" school for additional specific training. Initial "C" school training is intended for students in paygrades E-4 and below. Career "C" school training is provided to personnel E-5 and above, to enhance skills and knowledge within their field.

a. Initial Training. Lockheed Martin Corporation has been contracted to develop the training products to support SH-60R DT and OT. The SH-60R DT and OT training process has been divided into two segments for Engineering and Manufacturing Development (EMD)-I

and EMD-II. The intent of both the Navy and its contractors is to use an iterative process to produce and update materials and learning devices. Thus, materials developed for EMD-I would serve as source data for EMD-II training materials, and EMD-II training materials will be updated for fleet Initial Cadre training.

(1) EMD-I Training. The courses listed below will be required to support SH-60R EMD-I DT and OT. This training will focus on the training of test and evaluation personnel. The training dates are keyed to system software releases with training being conducted 4-6 weeks after each release.

Title	**Informal Radar Solo Flight Test Training**
Description	This course focuses on the AN/APS-147 Multi-Mode Radar. Topics in this course will include: ° MMR overview, capabilities and limitations ° Safety of flight issues ° MMR modes, their characteristic uses, and keyset functions for MMR.
Location	Lockheed Martin Corporation, Owego, New York
Length	To Be Determined (TBD)
RFT date	Ready For Training (RFT) date is yet TBD
TTE/TD.....	Master System Bench (Air)
Prerequisites	Pilot and SO qualified in the H-60 helicopter.

Title	**EMD-I ALFS Operator Training**
Description	This course focuses on the AQS-22 ALFS dipping sonar system. Topics in this course will include: ° ALFS overview, capabilities and limitations ° Safety of flight issues ° Pre-mission and Pre-flight activities ° Dipping sonar deployment and retrieval ° Sonar system operation including keyset operation ° Sonar operation in the DT and OT test environment
Location	Lockheed Martin Corporation, Owego
Length	11 days
RFT date	26 April 1999 (completed)

TTE/TD..... Master System Bench (Air), Test Benches, Laptop Simulators, Modified SH-60 aircraft for static (on ground) use.

Prerequisites ..... Pilot and SO qualified in the H-60 helicopter.

Title ..... EMD-I Multi Mode Radar Training

Description ..... This course will provide training on the AN/APS-147 Multi Mode Radar. Topics in this course will include:

- ° MMR overview, capabilities, and limitations
- ° MMR modes, characteristics, and uses
- ° Pre-mission and Pre-flight activities
- ° Keyset functions for MMR
- ° Related Mission Avionics Segment (MAS) equipment
- ° MMR operation in the DT and OT test environment

Location ..... Lockheed Martin Corporation, Owego

Length ..... 5 days

RFT date ..... 17 May 1999(completed)

TTE/TD..... Master System Bench (Air)

Prerequisites ..... Pilot and SO qualified in the H-60 helicopter.

Title ..... EMD-I ALFS Refresher Operator Training

Description ..... This is a refresher course on the AN/AQS-22 ALFS dipping sonar system. This course will review the following topics:

- ° Changes in the ALFS system implemented since the previous (Aircraft 349) training course as applicable.
- ° ALFS overview, capabilities and limitations
- ° Safety of flight issues
- ° Pre-mission and Pre-flight activities
- ° Dipping sonar deployment and retrieval
- ° Sonar system operation including keyset operation
- ° Sonar operation in the DT and OT test environment

Location ..... Lockheed Martin Corporation, Owego

Length ..... 2 days

RFT date ..... 19 May 1999(completed)

TTE/TD..... Master System Bench (Air), Test Benches, Laptop Simulators, modified SH-60 aircraft for static (on ground) use.

Prerequisites ..... Pilot and SO qualified in the H-60 helicopter.

Title ..... SH-60 Common Cockpit and Software Training

Description ..... This course provides training on the SH-60 "glass cockpit" modifications. Topics in this course will include:

- ° Glass cockpit instrumentation physical layout
- ° Capabilities and limitations of glass cockpit displays
- ° Pre-mission and Pre-flight activities
- ° Keyset functions used in the test environment
- ° Sensor operation in the DT and OT environment.

Location ..... Lockheed Martin Corporation, Owego

Length ..... 25 days

RFT date ..... 31 May 1999 (completed)

TTE/TD..... Master System Bench (Air), Test Benches, Laptop Simulators, Modified SH-60 aircraft for static (on ground) use.

Prerequisites ..... Pilot and SO qualified in the H-60 helicopter.

Title ..... Electronic Surveillance Measures System Training

Description ..... This course focuses on the ESM. Topics in this course will include:

- ° ESM overview, capabilities and limitations
- ° Safety of flight issues
- ° ESM modes, characteristic uses, and ESM keyset functions.

Location ..... Lockheed Martin Corporation, Owego

Length ..... 3 days

RFT date ..... 1 September 2000

TTE/TD..... Master System Bench (Air)

Prerequisites ..... Pilot and SO qualified in the H-60 helicopter.

(2) EMD-II Training. The initial training courses listed below will provide the Navy with qualified operators and maintainers to support the SH-60R EMD-II DT and OT aircraft. Each course will be taught once before DT and once before OT.

Title	**EMD-II Pilot/ATO Operator Training Course**
Description	This course focuses on the SH-60R in a test environment. Topics in this course will include: ° Safety of flight issues ° The DT and OT environment ° Pre-mission and Pre-flight activities ° Flight Avionics Segment (FAS) system capabilities and operation ° MAS system capabilities and operation ° SAS system capabilities and operation ° Mission scenario related training
Location	NAS Patuxent River LMFS Owego
Length	30 days
RFT date	DT: 14 May 2001, OT: September 2001
TTE/TD.....	Master System Bench (Air), Test Benches, Laptop Simulators, Modified SH-60 aircraft for static (on ground) use.
Prerequisites	Pilot and ATO qualified in the H-60 helicopter.

Title	**EMD-II Maintainer AT/AE Training Course**
Description	This course focuses on Organizational Level maintenance for the SH-60R aircraft. Topics in this course will include: ° SH-60R overview, capabilities, and limitations ° Safety and safety of flight issues ° The role of maintenance personnel in Pre-mission and Pre-flight activities ° FAS system capabilities and maintenance ° MAS system capabilities and maintenance ° SAS system capabilities and maintenance ° Post–mission activities ° Preventive maintenance, checks, and services
Location	NAS Patuxent River LMFS Owego

Length	20 days
RFT date	DT: 14 May 2001, OT: October 2001
TTE/TD.....	Master System Bench (Air), Test Benches, Laptop Simulators, Modified SH-60 aircraft for static (on ground) use.
Prerequisites	AE 8378/8878, AT 8378/8878, or AT 8376/8876

Title ..... EMD-II Maintainer AD/AM Training Course

Description ..... This course will provide training on the structural modifications performed to the SH-60R airframe.

- ° SH-60R overview, capabilities, and limitations
- ° Safety and safety of flight issues
- ° The role of maintenance personnel in Pre-mission and Pre-flight activities
- ° Airframe modification capabilities and maintenance
- ° Preventive Maintenance, checks, and services
- ° Airframe Maintenance in the DT and OT test environment

Location	NAS Patuxent River
Length	3 days
RFT date	DT: 14 May 2001, OT: TBD
TTE/TD.....	Modified SH-60 aircraft for static (on ground) use
Prerequisites	AM 8378/8878 and AD 8378/8878

Title ..... Sensor Operator Training Course

Description ..... A course on all aircraft sensors. This course will review the following topics:

- ° Safety of flight issues
- ° The DT and OT environment
- ° Pre-mission and Pre-flight activities
- ° FAS system capabilities and operation
- ° MAS system capabilities and operation
- ° SAS system capabilities and operation
- ° Mission scenarios

Location ..... NAS Patuxent River

Length	20 days
RFT date	DT: 14 May 2001, OT: October 2001
TTE/TD.....	Master System Bench (Air), Test Benches, Laptop Simulators, Modified SH-60 aircraft for static (on ground) use.
Prerequisites	AW 8376 or 8378

Title	**SH-60 Common Cockpit and Software Training**
Description	This course will provide training on the SH-60 "glass cockpit" modifications. Topics in this course will include: ° Glass cockpit instrumentation physical layout. ° Capabilities and limitations of glass cockpit displays ° Pre-mission and Pre-flight activities ° Keyset functions used in the test environment ° Sensor operation in the DT and OT environment.
Location	NAS Patuxent River LMFS Owego
Length	TBD
RFT date	TBD
TTE/TD.....	Master System Bench (Air), Test Benches, Laptop Simulators, Modified SH-60 aircraft for static (on ground) use.
Prerequisites	Pilot and SO qualified in the H-60 helicopter.

(3) Cadre Training. The Contractor will develop and conduct SH-60R differences training (Cadre) at NAS North Island, California, for FRS and NAMTG instructors, and an initial cadre of fleet personnel. This third block of initial training is scheduled to start in July 2002. The contractor will provide this training as well as all materials required. Specific information on SH-60R Initial Cadre Training is not available at this time; however, based on the CH-60S, it is estimated that the following courses will be required.

Title	**SH-60R MMH Pilot Initial Differences Training**
Description	This course will train Pilots in the skills and techniques required for performance as SH-60R Pilot qualified in model. This course will consist of separate ground and flight phases.

Location ..... NAS North Island

Length ..... 24 days

RFT date ..... July 2002

TTE/TD ..... SH-60R Aircraft

Prerequisites ..... Pilot qualified in the H-60 helicopter.

Title ..... SH-60R MMH Aircrewman Initial Differences Training

Description ..... This course will train Aircrewmen in the skills and techniques required to perform as SH-60R Aircrewman qualified in model.

Location ..... NAS North Island

Length ..... 12 days

RFT date ..... July 2002

TTE/TD..... SH-60R Aircraft

Prerequisites ..... AW 8376 or 8378

Title ..... SH-60R Power Plants and Related Systems Initial Differences Training

Description ..... This course will provide AD personnel with the skills and knowledge required to qualify as SH-60R organizational level maintenance technicians.

Location ..... NAS North Island

Length ..... 5 days

RFT date ..... July 2002

TTE/TD ..... SH-60R Aircraft

Prerequisites ..... AD 8378 or 8878

Title ..... SH-60R Airframes/Hydraulics and Related Systems Initial Differences Training

Description ..... This course will provide AMH and AMS personnel with the skills and knowledge required to qualify as SH-60R organizational level maintenance technicians.

Location ..... NAS North Island

Length ..... 5 days

RFT date ..... July 2002

TTE/TD ..... SH-60R Aircraft

Prerequisites ..... AM 8378 or 8878

Title ..... SH-60R Electrical/Instruments Systems Initial Differences Training

Description ..... This course will provide AE personnel with the skills and knowledge required to qualify as SH-60R organizational level maintenance technicians.

Location ..... NAS North Island

Length ..... 10 days

RFT date ..... July 2002

TTE/TD ..... SH-60R Aircraft

Prerequisites ..... AE 8378 or 8878

Title ..... SH-60R Automatic Flight Control Systems Initial Differences Training

Description ..... This course will provide AE personnel with the skills and knowledge required to qualify as SH-60R organizational level maintenance technicians.

Location ..... NAS North Island

Length ..... 5 days

RFT date ..... July 2002

TTE/TD ..... SH-60R Aircraft

Prerequisites ..... AE 8378 or 8878

Title ..... SH-60R Electronics Systems Initial Differences Training

Description ..... This course will provide AT personnel with the skills and knowledge required to qualify as SH-60R organizational level maintenance technicians.

Location	NAS North Island
Length	20 days
RFT date	July 2002
TTE/TD	SH-60R Aircraft
Prerequisites	AT 8376, 8876, 8378, 8878

Title	**SH-60R Non-Designated Airman/Plane Captain Initial Differences Training**
Description	This course will provide Non-Designated Airmen/Plane Captains with the skills and knowledge required to qualify as Plane Captain in an SH-60R squadron.
Location	NAS North Island
Length	5 days
RFT date	July 2002
TTE/TD.....	SH-60R Aircraft
Prerequisites	None

b. Follow-On Training. HSL-41 NAS North Island will provide follow-on training for the SH-60R operators beginning in FY02. HSL-40 Naval Station (NS) Mayport, Florida, will begin to provide follow-on training for SH-60R operators starting in FY05. Additionally, HS-10 NAS North Island will provide follow-on training for the SH-60R at a yet to be determined date.

NAMTG Detachment Maintenance Training Units (MTU) 1066 at NS Mayport, and MTU 1022 at NAS North Island, will provide follow-on maintenance training for SH-60R maintenance technicians beginning in FY03.

(1) Operator. Operator training for the SH-60R can be broken into two phases, FRS and Post-FRS Training, and two types Pilot/ATO and Aircrew training. Helicopter crew positions for the SH-60R will be carried over from the SH-60B, with the pilot and ATO occupying the right and left seats and the SO in the aft crew compartment. Because the crew positions and general responsibilities remain the same from the SH-60B, the basic training structure from the SH-60B will be applicable for the SH-60R.

Mission Qualification Requirements Continuum (MQRC) for the SH-60B and SH-60F were recently completed. This MQRC assessed tactics, related tasks, and skills at a high level and determined at what time in the Pilot/ATO/SO instructional progression each task should be trained. This progression was divided into the five levels outlined in Table 9 below.

TABLE 9 - MQRC TRAINING LEVELS		
LEVEL	**PILOT AND ATO/QUALIFICATION**	**SENSOR OPERATOR/QUALIFICATION**
100	Flight Training/Naval Aviator	AW "A" school
200	FRS/Pilot Qualified in Model	FRS
300	Helicopter 2nd Pilot	Aircrewmen
400	Helicopter Aircraft Commander	Post-graduate
500	Weapons Tactics Instructor	Weapons Tactics Instructor

Because of the added capabilities and complexities of the SH-60R, a structured post-graduate training program is essential. A formalized post-graduate training program will allow for greater standardization of and an increased emphasis on tactical employment and improved coordinated operations, and will provide a forum for development of new and advanced tactics. In addition, with the development of a formalized curriculum for post-graduate training, the FRS curriculum can be restructured to better conform to the structure delineated in the SH-60B and SH-60F MQRC. This tailoring of the FRS curriculum would allow for more emphasis on basic flight and tactical performance in the FRS and would delay the more advanced and perishable training until 300/400 Level post-graduate training.

HSL-41 and HSL-40 currently provide SH-60B operator training. Currently, SH-60F and HH-60H operator training are provided by HS-10. HSL-41 will transition to the SH-60R beginning in FY02 and will become the single site FRS for the SH-60R (in addition to SH-60B training) until FY05. Beginning in FY05, HSL-40 will transition to the SH-60R and will assume the role of single site FRS for the SH-60B (in addition to SH-60R training). HS-10 will transition to the SH-60R in FY05 with their RFT date yet to be determined. HS-10 will continue to train SH-60F/HH-60H operators.

The training concept that will be employed for SH-60R operators (both Pilots and Enlisted Aircrewmen) is one that will ensure HSL-41, HSL-40, and HS-10 teach the same "common" SH-60R courses. The premise is that an "HS" SH-60R Pilot or Aircrewman could receive his or her training at HSL-40 or HSL-41, and, likewise, an "HSL" SH-60R Pilot or Aircrewman could receive his or her training at HS-10.

(a) Fleet Readiness Squadron. FRS training will provide instruction to first tour operators along with second and subsequent tour operators requiring refresher training. This training will cover SH-60R specific systems, emergency procedures, flight maneuvers, and initial and refresher tactics training, and will consist of both cognitive and practical training. Table 10 provides the high level training tasks for the SH-60R and the amount of variance between the existing SH-60B and the SH-60R systems and capabilities:

TABLE 10 - FRS TRAINING					
TASK	**VARIANCE**				
	No Change	**Minor Changes**	**Moderate Changes**	**Major Changes**	**New**
FLIGHT PHASE:					
Program Introduction			X		
Preflight			X		
Prestart			X		
Start			X		
Shutdown			X		
Basic Flight Operations			X		
Engines	X				
Fuel System		X			
Transmission		X			
Rotor		X			
ECS	X				
Flight Controls		X			
Hydraulic		X			
Electrical System		X			
Day Familiarization		X			
Lighting System	X				
Night Operations			X		
Night Vision Devices					X
IMC Operations			X		
Radio Instruments				X	
Communications Equipment			X		
SATCOM					X
Navigation Equipment			X		
INS					X
GPS			X		
Formation	X				
Logistic Support		X			
Search and Rescue			X		
Operation Ashore		X			
Shipboard Operations		X			
PQM Evaluation			X		
TACTICS PHASE:					
Intel Week			X		
Hostile Environment Threat				X	
Avionics Operations				X	

TABLE 10 - FRS TRAINING					
TASK	VARIANCE				
	No Change	Minor Changes	Moderate Changes	Major Changes	New
Radar				X	
ESM				X	
IFF				X	
FLIR		X			
Hellfire		X			
ASST				X	
ASUW				X	
Oceanography		X			
Acoustic Sensors				X	
Dipping Sonar Operations					X
Passive Detection				X	
Re-detection				X	
Passive Tracking				X	
Passive Active Transition				X	
Active Detection				X	
Active Tracking				X	
Attack			X		
Joint Coordinated Operations		X			

(b) Cognitive Training. Academic training will be included in the FRS curriculum to provide the student with cognitive understanding of the SH-60R, its subsystems, and employment. This training will be based on the training materials developed for DT, OT, and Cadre training under the EMD-II contract. To reduce instructor workload the training should be self-paced, and in order to reduce cost should draw upon the existing SH-60B and CH-60S academic training materials and devices already in use or scheduled for introduction prior to the SH-60R RFT date. Approximately 25 percent of the current SH-60B training materials will be readily transferable to the SH-60R curriculum. Specifically, the aircraft's engines, hydraulic, and rotor systems will remain unchanged. In addition, all CH-60S training that addresses cockpit controls and instrumentation will be transferable. The CH-60S operator courseware currently under development is being authored to the same format as the current SH-60B courseware. It is anticipated that this format will be retained for the SH-60R FRS Computer-Based Training (CBT) to facilitate reuse.

(c) Practical Training. Hands-on training employing a variety of different TDs will be included in the FRS curriculum to provide the students with practical and psychomotor training. The fidelity of these devices will increase as the student's knowledge and skills develop, advancing the student from the cognitive knowledge gained through academic

lessons through full crew coordination necessary to safely operate the SH-60R in a tactical environment.

(d) Keyset Display Trainer. A TD will be required to train both Pilots/ATO and SOs. This device will permit individual training on simulations or replicas of the Pilot/ATO and SO keysets and displays. It will provide individualized instruction and immediate student feedback, and will be tied into the Computer-Managed Instruction (CMI) network. This device is designated at the Keyset Part Task Trainer (PTT) and is an extension of the CH-60S PTT. It will consist of a keyset mockup linked to a computer monitor with a mockup of the aircraft display. Simulated bezels will be installed around the edges of the monitor to replicate the bezels on the aircraft displays. Flight computer and mission computer functions will be replicated and an interactive tutorial feature will be incorporated. In addition to the PTTs installed at the FRS (with keysets), numerous copies of the software for use with a standard Personal Computer and no keysets will be available for refresher training.

(e) Flight Trainers. A flight trainer is required that will provide the student pilots initial SH-60R flight operations training in a safe and controllable environment. This trainer should consist of a full size replica of the aircraft cockpit with motion cueing, and a day-night visual system. The device should have student stations for the Pilot and Co-pilot/ATO, and should be operable with or without an instructor. The Instructor station should be positioned such that it will allow the instructor to observe the actions of both students, monitor the flight instruments and visual system displays, while manipulating the instructor console. In addition, this device should be linked to an independently operable debrief station that tracks aircraft status, environment, student flight control inputs, and internal and external communications. Specific tasks to be trained in this device will include cockpit familiarization, checklist procedures, take-off and landings, flight maneuvers, Visual Flight Rules and Instrument Flight Rules navigation, equipment malfunctions, communications, aircrew coordination, and emergency procedures training.

(f) Tactics Trainer. An SO TD will be required for tactical mission training of SOs. This device should replicate the SO station and permit the training of all SO functions for both acoustic and non-acoustic tactical equipment. This trainer should consist of a full size replica of the SO station, and should have positions for the SO and an observer. The instructor's station should allow the instructor to monitor all tactical actions and communication made by the student. This device should be linked to an independently operable debrief station capable of replaying the entire tactical scenario including the acoustic and non-acoustic displays.

A full mission tactical trainer is required for advanced tactical training and to develop crew coordination during tactical missions. This trainer should consist of a full size replica of the aircraft cockpit with motion cueing, and a day-night visual system. The device should have student stations for the Pilot and Co-pilot/ATO, should be capable of linking with either of the SO trainers listed above, and should be able to simulate basic tactical missions without an SO. The instructor's station should allow the instructor to monitor all tactical actions and communication made by the student, and should allow the instructor to role-play the remaining members of the LAMPS MK III team. This device should be linked to an

independently operable debrief station capable of replaying the entire tactical scenario including the acoustic and radar displays.

(g) Aircraft. H-60 (aircraft) events will be used to provide the student pilots and SOs with additional SH-60R flight training. This training will include preflight, checklist procedures, take-off and landings, flight maneuvers, navigation, equipment malfunctions, communications, aircrew coordination, and emergency procedures training.

(h) Post-graduate. Post-graduate training will be designed to build upon the FRS training, which shall include both cognitive and practical training, and will lead to higher level qualifications as defined by the MQRC. This post-graduate approach to training is designated by OPNAV as the Aircrew Combat Training Continuum (ACTC). An initial ACTC curriculum is being developed in the SH-60B community and will be reused (and expanded) for the SH-60R. Table 11 lists the high level task and the training level in which additional formalized training will be required.

TABLE 11 – POST-GRADUATE TRAINING LEVELS

TASK	TRAINING LEVEL		
	300	400	500
FLIGHT PHASE:			
Logistic Support	X	X	
Search and Rescue	X	X	
Operation Ashore	X	X	
Night Vision Device	X	X	X
Shipboard Operations	X	X	
TACTICS PHASE:			
Hostile Environment Threat	X	X	X
ASST	X	X	X
ASUW	X	X	X
USW	X	X	X
Oceanography	X	X	X
Joint Coordinated Operations	X	X	X

(i) Proficiency. Proficiency training will be used to maintain required levels of proficiency in all aspects of flight and tactical performance. These formal requirements will be stipulated by the appropriate naval command organizations including but not limited to CNO, AIRLANT and AIRPAC, and HSLWINGLANT and HSLWINGPAC. It will include annual flight and instrument hour minimums, instrument approach requirements, and pre-deployment and readiness qualifications. Proficiency training will be used to maintain NATOPS and Rescue Swimmer qualifications, Instrument Ratings, Deck Landing Qualification (DLQ), night flight hour, Doppler currency, and all other flight related certifications and qualifications required of pilots and aircrewmen. This training will include simulator events and aircraft events,

both at-sea and over land, using Department of Defense (DoD) approved airfields and NAVAIDS, and USN DLQ certified ships.

Tactical training will also be included as part of proficiency training. The added capabilities and performance associated with the SH-60R will increase the need for proficiency training at all crew stations. This training will include aircraft and simulator events, the use of tactical ranges, both at-sea and over land, and USN ships, submarines, and aircraft. This training will be used to attain and maintain tactical crew designations and/or qualifications. Although the requirements are formal and are derived from formal instructions the method of attaining and maintaining this proficiency will vary depending on the individual operator's experience and work-up/deployment schedule. The following operator courses are proposed new courses that will include the SH-60R equipment and systems. As a result, not all the required information is available.

Title	**SH-60R MMH Category I Fleet Replacement Pilot**
CIN	D/E-2C-XXXX (As part of pipeline D/E-2C-XXXX)
Model Manager ..	HSL-41
Description	This course will train the SH-60R Category I Fleet Replacement Pilot in the skills and techniques required for performance as a pilot qualified in model.
Location	° HSL-41, NAS North Island ° HSL-40, NS Mayport ° HS-10, NAS North Island
Length	TBD
RFT date	° HSL-41, FY02 ° HSL-40, FY05 ° HS-10, TBD
Skill identifier	1311
TTE/TD	Technical Training Equipment (TTE) for SH-60R is TBD. A new Weapon System Trainer (WST) and Tactical / Operational Flight Trainer (T/OFT) will be required.
Prerequisite	° Designated Service Group II Naval Aviator. ° Designated Naval Helicopter Pilot. ° D-2D-0032, Survival, Evasion, Resistance, and Escape (SERE) Training ° Secret Clearance

Title	**SH-60R MMH Category II Fleet Replacement Pilot**
CIN	D/E-2C- XXXX (As part of pipeline D/E-2C- XXXX)
Model Manager ..	HSL-41
Description	This course will train the SH-60R Category II Fleet Replacement Pilot in the skills and techniques required for performance as a pilot qualified in model.
Location	° HSL-41, NAS North Island ° HSL-40, NS Mayport ° HS-10, NAS North Island
Length	TBD
RFT date	° HSL-41, FY02 ° HSL-40, FY05 ° HS-10, TBD
Skill identifier	1311
TTE/TD	TTE for SH-60R is TBD. A new WST and a T/OFT will be required.
Prerequisite	° Designated Service Group II Naval Aviator. ° Designated Naval Helicopter Pilot. ° D-2D-0032, SERE Training ° D/E-2C-XXXX, SH-60R Category I Fleet Replacement Pilot ° Secret Clearance

Title	**SH-60R MMH Category III Fleet Replacement Pilot**
CIN	D/E-2C- XXXX (As part of pipeline D/E-2C- XXXX)
Model Manager ..	HSL-41
Description	This course will train the SH-60R Category III Fleet Replacement Pilot in the skills and techniques required for performance as a pilot qualified in model.
Location	° HSL-41, NAS North Island ° HSL-40, NS Mayport ° HS-10, NAS North Island
Length	TBD

RFT date ..... ° HSL-41, FY02
° HSL-40, FY05
° HS-10, TBD

Skill identifier 1311

TTE/TD ..... TTE for SH-6R is TBD. A new WST and a T/OFT will be required.

Prerequisite ..... ° Designated Service Group II Naval Aviator.
° Designated Naval Helicopter Pilot.
° D-2D-0032, SERE Training
° D/E-2C-XXXX, SH-60R Category I Fleet Replacement Pilot
° Secret Clearance

Title ..... SH-60R MMH Category IV Fleet Replacement Pilot

CIN ..... C-2C- XXXX (As part of pipeline E-2C- XXXX)

Model Manager .. HSL-41

Description ..... This course will train SH-60R Category IV Fleet Replacement Pilots in the skills and techniques required for performance as a pilot qualified in model.

Location ..... ° HSL-41, NAS North Island
° HSL-40, NS Mayport
° HS-10, NAS North Island

Length ..... TBD

RFT date ..... ° HSL-41, FY02
° HSL-40, FY05
° HS-10, TBD

Skill identifier 1311

TTE/TD ..... TTE for SH-60R is TBD. A new WST and a T/OFT will be required.

Prerequisite ..... ° Designated Service Group II Naval Aviator
° Designated Naval Helicopter Pilot
° D-2D-0032, SERE Training
° Secret Clearance

Title	**SH-60R MMH Category V Fleet Replacement Pilot Pipeline**
CIN	C-2C- XXXX (As part of pipeline E-2C- XXXX)
Model Manager ..	HSL-41
Description	This course will train SH-60R Category V Fleet Replacement Pilots in the skills and techniques required for performance as a pilot qualified in model.
Location	° HSL-41, NAS North Island ° HSL-40, NS Mayport ° HS-10, NAS North Island
Length	TBD
RFT date	° HSL-41, FY02 ° HSL-40, FY05 ° HS-10, TBD
Skill identifier	1311
TTE/TD	TTE for SH-60R is TBD. A new WST and a T/OFT will be required.
Prerequisite	° Designated Service Group II Naval Aviator ° Designated Naval Helicopter Pilot

Title	**SH-60R MMH Pilot Instructor Under Training**
CIN	C-2C- XXXX
Model Manager ..	HSL-41
Description	This course will provide the training necessary for qualified SH-60R pilots to instruct designated naval aviators transitioning to the SH-60R aircraft. This course will consist of academic and hands-on training addressing SH-60R aircraft instructor, WST, and ground instructor skills and knowledge.
Location	° HSL-41, NAS North Island ° HSL-40, NS Mayport ° HS-10, NAS North Island
Length	TBD

RFT date	° HSL-41, FY02 ° HSL-40, FY05 ° HS-10, TBD
Skill identifier	1311
TTE/TD	TTE for SH-60R is TBD. A new WST and a T/OFT will be required.
Prerequisite	° Designated Service Group II Naval Aviator ° Designated Naval Helicopter Pilot ° Secret Clearance

Title	**SH-60R MMH Category I Replacement Aircrewman**
CIN	C-050- XXXX (As part of pipeline E-050-XXXX)
Model Manager ..	HSL-41
Description	This course will train the SH-60R Category I Replacement Aircrewman in the skills and techniques required for performance as an aircrewman qualified in model.
Location	° HSL-41, NAS North Island ° HSL-40, NS Mayport ° HS-10, NAS North Island
Length	TBD
RFT date	° HSL-41, FY02 ° HSL-40, FY05 ° HS-10, TBD
Skill identifier	AW 78XX
TTE/TD	TTE for SH-60R is TBD. A new WST will be required.
Prerequisite	° Q-050-1500, Naval Aircrew Candidate School ° Q-050-0600, Aviation Rescue Swimmer School ° C-210-2011, AW Class A1 School ° Secret Clearance

Title	**SH-60R MMH Category II Replacement Aircrewman**
CIN	C-050-XXXX (As part of pipeline E-050-XXXX)
Model Manager ..	HSL-41

Description	This course will train the SH-60R Category II Aircrewman in the skills and techniques required for performance as an aircrewman qualified in model.
Location	° HSL-41, NAS North Island ° HSL-40, NS Mayport ° HS-10, NAS North Island
Length	TBD
RFT date	° HSL-41, FY02 ° HSL-40, FY05 ° HS-10, TBD
Skill identifier	AW 78XX
TTE/TD	TTE for SH-60R is TBD. A new WST will be required.
Prerequisite	° D/E-050-XXXX, SH-60R Category I Replacement Aircrewman ° Secret Clearance

Title	**SH-60R MMH Fleet Replacement Aircrew Instructor Under Training**
CIN	C-050-XXXX
Model Manager ..	HSL-41
Description	This course will train NATOPS qualified SH-60R SOs in the skills and techniques required for SH-60R FRS Instructor SOs.
Location	° HSL-41, NAS North Island ° HSL-40, NS Mayport ° HS-10, NAS North Island
Length	TBD
RFT date	° HSL-41, FY02 ° HSL-40, FY05 ° HS-10, TBD
Skill identifier	AW 78XX
TTE/TD	TTE for SH-60R is TBD. A new WST will be required.
Prerequisite	° C-210-2011, AW Class A1 School ° Be a qualified Aircrewman in the H-60 series helicopter ° Secret Clearance

Title	**Aviation Rescue Swimmer School Category 1**
CIN	Q-050-0600
Model Manager ..	HC-3
Description	This course provides the knowledge and skills necessary to rescue waterborne survivors and to initially qualify as aviation rescue swimmers.
Location	° Rescue Swimmer School, NATTC Pensacola ° HC-3, NAS North Island ° HSWINGLANT, NAS Jacksonville
Length	26 days
RFT date	° HS-10, Currently available ° HSL-41, FY02 ° HSL-40, FY05
Skill identifier	AW 7815
TTE/TD	NA
Prerequisite	Q-050-1500, Naval Aircrewman Candidate School (AW and Non-AW)

(2) Maintainer. SH-60B, SH-60F, and HH-60H enlisted maintenance training is currently provided by NAMTG Detachment MTUs 1005, 1022, and 1066. With the exception of ATs, all enlisted ratings are trained with common courses that are applicable to the SH-60B and SH-60F/HH-60H (CH-60S training is impending). In contrast, there are currently two types of training for the AT rating, SH-60B and SH-60F/HH-60H (CH-60S AT training is impending). SH-60B AT maintenance training is provided by MTUs 1066, and 1022, while SH-60F/HH-60H AT maintenance training is provided by MTUs 1005 and 1022. CH-60S AT training will be provided by MTUs 1066 and 1022.

The addition of the SH-60R helicopter (beginning in FY02) will change the above scenario. NAMTG Detachment MTUs 1005 and 1022 will integrate SH-60R maintenance training for all enlisted ratings, except AT, into the existing common SH-60B and SH-60F/HH-60H, and impending CH-60S courses provided. For the AT rating, a new Initial and Career SH-60R Electronics Systems course will be developed and established at MTUs 1066 and 1022. Furthermore, only two Avionics Maintenance Trainers (AMT) are being procured with planned deliveries to MTUs 1066 and 1022.

Note: With the addition of Initial and Career AT SH-60R Electronics Systems courses, there will be four types of AT H-60 maintenance courses: SH-60B, SH-

60F/HH-60H, CH-60S, and SH-60R. As the CH-60S and the SH-60R are introduced into the Fleet and the existing SH-60B, SH-60F, HH-60H aircraft are phased out, the need for SH-60B and SH-60F/HH-60H AT training will diminish. When this training is no longer needed, based on aircraft assets, the corresponding courses can be closed.

All current H-60 organizational level maintenance courses are in the process of integrating CBT with its basic elements of CMI, Computer-Aided Instruction (CAI), Interactive Courseware, and Aviation Maintenance Training Continuum System (AMTCS) Electronic Modules, into their curricula for classroom presentation and management. These H-60 courses are expected to be converted to AMTCS format prior to introduction of the SH-60R Curricula.

The new AT courses (i.e., Initial and Career) and the existing H-60 organizational level maintenance courses that will need modification to include the SH-60R equipment and systems are listed below. The addition of SH-60R information to existing courses should pose a moderate impact to the overall course length. As a result, their course lengths may vary from those listed.

Title	**H-60 Power Plants and Related Systems Initial O-Level Maintenance**
CIN	C-601-9408 (as part of training track D/E-602-0810)
Model Manager ..	MTU 1022, NAS North Island
Description	Upon completion of this course, AD personnel will have sufficient knowledge and skills of the H-60 powerplants and related systems equipment, including operation, testing, maintenance, troubleshooting and repair procedures to perform, under limited supervision, organizational level maintenance in the squadron working environment both ashore and afloat.
Location	° MTU 1005, NAS Jacksonville ° MTU 1022, NAS North Island ° MTU 1066, NS Mayport
Length	33 days (37 days for track)
RFT date	Currently available. FY02 for SH-60R.
Skill identifier	AD 8878
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required for viewing IETMs.
Prerequisite	C-601-2012, Aviation Machinist's Mate Helicopter Fundamentals Strand Class A1

Title	**H-60 Power Plants and Related Systems Career O-Level Maintenance**
CIN	C-601-9407 (as part of training track D/E-601-0813)
Model Manager ..	MTU 1022, NAS North Island
Description	Upon completion of this course, AD personnel will have sufficient knowledge and skills of the H-60 powerplants and related systems equipment, including operation, testing, maintenance, troubleshooting, and repair procedures, to perform organizational level maintenance in the squadron working environment both ashore and afloat.
Location	° MTU 1005, NAS Jacksonville ° MTU 1022, NAS North Island ° MTU 1066, NS Mayport
Length	12 days (16 days for track)
RFT date	Currently available. FY02 for SH-60R.
Skill identifier	AD 8378
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required.
Prerequisite	D/E-602-0810, H-60 Power Plants and Related Systems Initial O-Level Maintenance

Title	**H-60 Electrical/Instruments and Automatic Flight Control Systems Initial O-Level Maintenance**
CIN	C-602-9409 (as part of training track D/E-602-0855)
Model Manager ..	MTU 1022, NAS North Island
Description	Upon completion of this course, AE personnel will have sufficient knowledge and skills, including operation, testing, troubleshooting, and repair procedures, to perform, under limited supervision, organizational level maintenance on the H-60 Helicopter in the squadron working environment.
Location	° MTU 1005, NAS Jacksonville ° MTU 1022, NAS North Island ° MTU 1066, NS Mayport
Length	75 days (79 days for track)
RFT date	Currently available. FY02 for SH-60R.

Skill identifier	AE 8878
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required. A new AMT will be required.
Prerequisite	C-602-2039, Aviation Electrician's Mate O Level Strand Class A1

Title	**H-60 Electrical/Instrument and Automatic Flight Control Systems Career O-Level Maintenance**
CIN	C-602-9407 (as part of training track D/E-602-0854)
Model Manager ..	MTU 1022, NAS North Island
Description	Upon completion of this course, AE personnel will have advanced knowledge and skills including the theory of operation, organizational level maintenance practices, testing and troubleshooting of the H-60 electrical/ instruments and related systems to perform organizational level maintenance in the squadron working environment.
Location	° MTU 1005, NAS Jacksonville ° MTU 1022, NAS North Island ° MTU 1066, NS Mayport
Length	12 days (23 days for track)
RFT date	Currently available. FY02 for SH-60R.
Skill identifier	AE 8378
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required. A new AMT will be required.
Prerequisite	D/E-602-0855, H-60 Electrical/Instruments and Automatic Flight Systems Initial O-level maintenance

Title	**H-60 Airframes and Hydraulic Systems Initial O-Level Maintenance**
CIN	C-603-9408 (as part of training track D/E-602-0883)
Model Manager ..	MTU 1022, NAS North Island

Description	Upon completion of this course, the AMS/AMH personnel will have sufficient knowledge and skill of the H-60 airframes and related systems equipment, including operation, testing, maintenance, troubleshooting, and repair procedures to perform, under limited supervision, organizational level maintenance in the squadron working environment.
Location	° MTU 1005, NAS Jacksonville ° MTU 1022, NAS North Island ° MTU 1066, NS Mayport
Length	30 days (32 days for track)
RFT date	Currently available. FY02 for SH-60R.
Skill identifier	AMS or AMH 8878
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required.
Prerequisite	C-603-0176, Aviation Structural Mechanic (Structures and Hydraulics) Organizational Level Strand Class A1

Title	**H-60 Career Airframes and Hydraulics Systems O-Level Maintenance**
CIN	C-603-9407 (as part of training track D/E-602-0882)
Model Manager ..	MTU 1022, NAS North Island
Description	Upon completion of this course, AMS and AMH personnel will have advanced knowledge and skills of the H-60 airframes and related systems equipment, including testing, maintenance, troubleshooting, and repair procedures, to perform organizational level maintenance in the squadron working environment.
Location	° MTU 1005, NAS Jacksonville ° MTU 1022, NAS North Island ° MTU 1066, NS Mayport
Length	5 days (9 days for track)
RFT date	Currently available. FY02 for SH-60R.
Skill identifier	AMS or AMH 8378
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required.
Prerequisite	D/E-602-0883, H-60 Airframes and Hydraulic Systems Initial O-Level Maintenance

Title	**SH-60R Electronics Systems Initial O-Level Maintenance**
CIN	C-102-XXXX (as part of training track D/E-102-XXXX)
Model Manager ..	MTU 1022, NAS North Island
Description	Upon completion of this course, AT personnel will have acquired sufficient skill and knowledge of the SH-60R avionics equipment, system analysis, maintenance, repair, and troubleshooting techniques, to perform, under limited supervision, organizational level maintenance in the squadron working environment.
Location	° MTU 1022, NAS North Island ° MTU 1066, NS Mayport
Length	TBD
RFT date	FY02
Skill identifier	AT 88XX
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required. A new AMT will be required.
Prerequisite	C-100-2018, Avionics Technician O Level Class A1

Title	**SH-60R Electronics Systems Career O-Level Maintenance**
CIN	C-102-XXXX (as part of training track D/E-102-XXXX)
Model Manager ..	MTU 1066, NS Mayport
Description	Upon completion of this course, AT personnel will have sufficient knowledge and skills, including theory of operation, organizational level maintenance practices, and troubleshooting procedures of the SH-60R helicopter electronic systems, to perform O-level maintenance in the squadron working environment.
Location	° MTU 1066, NS Mayport ° MTU 1022, NAS North Island
Length	TBD
RFT date	FY02

Skill identifier	AT 83XX
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required. A new AMT will be required.
Prerequisite	D/E-102-XXXX, SH-60R Electronics Systems Initial O-Level Maintenance

Title	**H-60 Armament and Related Systems O-Level Maintenance**
CIN	C-646-9407 (as part of training track D/E-646-0840)
Model Manager ..	MTU 1022, NAS North Island
Description	Upon completion of this course, AO personnel will have sufficient knowledge and skills, including theory of operation, organizational level maintenance practices, and troubleshooting procedures of the H-60 helicopter ordnance systems, to perform O-level maintenance in the squadron working environment.
Location	° MTU 1005, NAS Jacksonville ° MTU 1022, NAS North Island ° MTU 1066, NS Mayport
Length	24 days (26 days for track)
RFT date	Currently available. FY02 for SH-60R.
Skill identifier	AO 8378
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required. The following H-60 maintenance TDs may need to be modified: SH-60F Ordnance System Trainers.
Prerequisite	C-646-2012, Aviation Ordnanceman Airwing Strand Class A1

Title	**H-60 Non-Designated Airman/Plane Captain**
CIN	C-600-3408 (as part of training track D/E-600-0811)
Model Manager ..	MTU 1022, NAS North Island
Description	Upon completion of this course, the Airman will be able to perform under close supervision limited organizational level maintenance on the H-60 aircraft.

Location	° MTU 1005, NAS Jacksonville ° MTU 1022, NAS North Island ° MTU 1066, NS Mayport
Length	19 days (23 days for track)
RFT date	Currently available. FY02 for SH-60R.
Skill identifier	None
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required. The following H-60 maintenance TDs may need to be modified: SH-60F Composite Maintenance Trainers (CMT), SH-60F Landing Gear/Wheel Brake Trainers.
Prerequisite	A-950-0069, Airman Apprentice Training

Title	**H-60 Wire System Repair O-Level Maintenance**
CIN	C-602-4410 (as part of training tracks D/E-102-0820, D/E-602-0854, D/E-102-0822, D/E-646-0840, and D/E-102-XXX2)
Model Manager ..	MTU 1022, NAS North Island
Description	Upon completion of this course, AE and AT personnel will have the sufficient knowledge and theory of H-60 helicopter wiring and connector repair, including the use of applicable support equipment, to perform, under limited supervision, organizational level maintenance within the squadron environment.
Location	° MTU 1005, NAS Jacksonville ° MTU 1022, NAS North Island ° MTU 1066, NS Mayport
Length	5 days
RFT date	Currently available. FY02 for SH-60R.
Skill identifier	None
TTE/TD	TTE for SH-60R is TBD. PEDDs will be required. No TDs are required.
Prerequisite	° AT: C-100-2018, Avionics Technician O Level Class A1 ° AE: C-602-2039, Aviation Electrician's Mate O Level Strand Class A1

c. Student Profiles. The following table depicts profiles of students that will attend SH-60R training.

SKILL IDENTIFIER	PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS
1311	° Q-2A-0001, Primary Flight Training ° Q-2A-0010, Joint T-34C/T-6A Joint Primary Aircraft Trainer System Intermediate Flight Training ° Q-2A-0015, Undergraduate Helicopter Pilot Training ° E-2D-0032, SERE Training ° J-495-0413, Shipboard Aircraft Firefighting
AW 78XX AW 78XX	° Q-050-1500, Naval Aircrewman Candidate School ° C-210-2010, AW Class A1 Training ° D-2G-0025 or E-2D-0032, SERE Training ° C-210-2011, Airborne Acoustic Mission Course ° D/E-050-2507, M-60D Familiarization ° Q-50-0600, Aviation Rescue Swimmer School Category 1 (AW/Non-AW) ° B-9E-1226, Naval Aviation Water Survival Program
AD 8878	° C-601-2011, Aviation Machinist's Mate Common Core Class A1 ° C-601-2012, Aviation Machinist's Mate Helicopter Fundamentals Strand Class A1
AD 8378	° C-601-2011, Aviation Machinist's Mate Common Core Class A1 ° C-601-2012, Aviation Machinist's Mate Helicopter Fundamentals Strand Class A1 ° D/E-601-0813, SH-60B/F Initial Power Plants and Related Systems O-Level Maintenance
AE 8878	° C-100-2020, Avionics Common Core Class A1 ° C-602-2039, AE O-Level Strand Class A1
AE 8378	° C-100-2020, Avionics Common Core Class A1 ° C-602-2039, Aviation Electrician's Mate O Level Strand Class A1 ° D/E-602-0851, SH-60B/F Initial Electrical/Instrument Systems O-Level Maintenance

SKILL IDENTIFIER	PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS
AM 8878	° C-603-0175, Aviation Structural Mechanic (Structures and Hydraulics) Class A1 ° C-603-0176, Aviation Structural Mechanic (Structures and Hydraulics) Organizational Level Strand Class A1
AM 8378	° C-603-0175, Aviation Structural Mechanic (Structures and Hydraulics) Class A1 ° C-603-0176, Aviation Structural Mechanic (Structures and Hydraulics) Organizational Level Strand Class A1 ° D/E-602-0883, SH-60B/F Initial Airframes and Hydraulic Systems O-Level Maintenance
AT 88XX	° C-100-2020, Avionics Common Core Class A1 ° C-100-2018, Avionics Technician O Level Class A1
AT 83XX	° C-100-2020, Avionics Common Core Class A1 ° C-100-2018, Avionics Technician O Level Class A1 ° D/E-102-XXXX, SH-60R Systems O-Level (Initial) Maintenance
AO 8378	° C-646-2011, Aviation Ordnanceman Common Core Class A1 ° C-646-2012, Aviation Ordnanceman Airwing Strand Class A1

d. Training Pipelines. The following table displays the proposed new training tracks required to support the SH-60R.

TRACK NUMBER	TRACK TITLE	LOCATION AND RFT DATE
E-2C-XXXX	SH-60R Category I Fleet Replacement Pilot Pipeline	HSL-41, NAS North Island..... FY02 HSL-40, NS Mayport ..... FY05 HS-10, NAS North Island..... TBD
E-2C-XXXX	SH-60R Category II Fleet Replacement Pilot Pipeline	HSL-41, NAS North Island..... FY02 HSL-40, NS Mayport ..... FY05 HS-10, NAS North Island..... TBD
E-2C-XXXX	SH-60R Category III Fleet Replacement Pilot Pipeline	HSL-41, NAS North Island..... FY02 HSL-40, NS Mayport ..... FY05 HS-10, NAS North Island..... TBD

TRACK NUMBER	TRACK TITLE	LOCATION AND RFT DATE
E-2C-XXXX	SH-60R Category IV Fleet Replacement Pilot Pipeline	HSL-41, NAS North Island..... FY02 HSL-40, NS Mayport ..... FY05 HS-10, NAS North Island..... TBD
D/E-2C-XXXX	SH-60R Category V Fleet Replacement Pilot Pipeline	HSL-41, NAS North Island..... FY02 HSL-40, NS Mayport ..... FY05 HS-10, NAS North Island..... TBD
D/E-050-XXXX	SH-60R Category I Replacement Aircrewman	HSL-41, NAS North Island..... FY02 HSL-40, NS Mayport ..... FY05 HS-10, NAS North Island..... TBD
D/E-050-XXXX	SH-60R Category II Replacement Aircrewman	HSL-41, NAS North Island..... FY02 HSL-40, NS Mayport ..... FY05 HS-10, NAS North Island..... TBD
D/E-102-XXXX	SH-60R Electronics Systems Initial O-Level Maintenance	MTU 1022, NAS North Island... FY02 MTU 1005, NAS Jacksonville.... FY02
D/E-102-XXXX	SH-60R Electronic Systems Career O-Level Maintenance	MTU 1022, NAS North Island... FY02 MTU 1005, NAS Jacksonville.... FY02

I. ONBOARD (IN-SERVICE) TRAINING

1. Proficiency or Other Training Organic to the New Development

a. Aviation Maintenance In-Service Training. Aviation Maintenance In-Service Training (AMIST) is intended to support the Fleet training requirements now satisfied by Maintenance Training Improvement Program and in that sense is the planned replacement. However, it is structured very differently, and will function as an integral part of the new AMTCS that will replace the existing aviation maintenance training structure. AMIST will provide standardized instruction to bridge the training gaps between initial and career training. With the implementation of AMIST, the technician will be provided the training required to maintain a level of proficiency necessary to effectively perform the required tasks to reflect a career progression.

AMTCS redesigns the aviation training process (training continuum), and introduces CBT throughout the Navy technical training process. The application and adoption of recent advances in computer hardware and software technology have enabled CBT with its basic elements of CMI, CAI, and Interactive Courseware to be integrated into the training continuum and provide essential support for standardizing technical training.

The AMTCS Project Plan denotes that NAMTG Detachment MTUs 1005, 1066 and 1022 began the transition to CBT the second quarter FY98 and is estimated to be complete by the third or fourth quarter of FY00. Therefore, it is anticipated that H-60 Maintenance training

will be in CBT/CAI format prior to introduction of the SH-60R curriculum. The Naval Aviation Training Systems Program Office (PMA205) will develop a separate CH-60S/SH-60R CBT that will be incorporated into the existing H-60 CBT. This CH-60S/SH-60R CBT will be compatible with the legacy H-60 CBT, and be utilized in the AMTCS environment.

b. SH-60R Embedded Training. Embedded Training (ET) uses the aircraft's installed tactical systems for tactical refresher training. Current planning calls for use of the SSQ-89 Onboard Trainer physically located aboard LAMPS ships for USW sonobuoy simulations. Other high-level functions to simulate the transition to ALFS prosecution and USW missions will be developed to support an independent mode. Additional information on the SH-60R ET will be provided in future updates of this document.

2. Personnel Qualification Standard Requirements. Should there be a requirement for SH-60R Personnel Qualifications Standards (PQS) development, contact Naval Education and Training Professional Development and Technology Center, PQS Development Group for information concerning the development, production, or printing of PQS documents.

3. Other Onboard or In-Service Training Packages. AD, AE, AMH, AMS, and AO personnel who were previously trained and awarded NECs 8378 or 8878 will retain these NECs for the SH-60R helicopter. These personnel will acquire the sufficient knowledge and skills of the SH-60R systems through the On-the-Job Training process.

J. LOGISTICS SUPPORT

1. Manufacturer and Contract Numbers

CONTRACT NUMBER	MANUFACTURER	ADDRESS
N00019-97-G-0111	Lockheed Martin Federal Systems (Prime Contractor)	1801 SR 17C Owego, NY 13827
N00019-96-G-0023	Sikorsky Aircraft Corporation	6900 Main Street P.O. Box 9727 Stratford, CT 06497-9129

2. Program Documentation

DOCUMENT	ORIGINATOR	APPROVAL DATE
Integrated Logistics Support Plan (ILSP) (SH-60R)	AIR 3.1.2Q	12 April 1995

DOCUMENT	ORIGINATOR	APPROVAL DATE
LAMPS MK III Block II Upgrade Design Description Document	Lockheed Martin Corporation	19 December 1997
Test and Evaluation Master Plan (Draft)	PMA299	19 February 1999
Operational Requirements Document	OPNAV N880E3	3 August 1992

3. Technical Data Plan. The SH-60R technical publications will be produced, distributed, and supported in an IETMs format, including software and hardware support. It will support the airframe, mission avionics, engine, and support equipment and be developed with close coordination between Naval Air Technical Data and Engineering Service Command, applicable NAVAIRSYSCOM Field Activities, and Contractor personnel.

4. Test Sets, Tools, and Test Equipment. Since the SH-60R is a derivative of other existing H-60 systems, most of the support equipment required is available in the Government inventory. Newly designed SH-60R avionics systems will be compatible with the Consolidated Automated Support System (CASS) Automatic Test Equipment. All organic test requirements will be organizational level maintenance-to-Original Equipment Manufacturer (OEM) or with CASS

5. Repair Parts. Naval Inventory Control Point (NAVICP) files will be updated to reflect SH-60R applicability on the H-60 common parts. A Parts Difference List will be developed using the H-60 and SH-60R Engineering Gross Requirements List (GRL) and applicable NAVICP data. A comparison of the H-60 and SH-60R GRLs will spike out the items that are peculiar to H-60 only. The contractor will extract these items from the NAVICP data to produce a list of items common to the H-60 for delivery to NAVICP. Support for the Common Cockpit will differ from other components on the SH-60R. The support concept will change to OEM. This will result in the elimination of organic intermediate and depot levels spare and repair part requirements. Organizational level spare requirements, as a result of the change in support concept, will increase. The range of spares will remain unchanged, however, the depth will increase because of increased turnaround time resulting from the time required to ship retrograde non-ready for issue assets back to the Continental United States contractor, then repair the items and return them to the fleet. The Material Support Date for the SH-60R has not been determined yet.

6. Human Systems Integration. The Human Systems Integration (HSI) Plan establishes the basis for effective integration of human factors engineering, manpower, personnel, training, health hazards, and safety considerations into the SH-60R acquisition as outlined in DoD Instruction 5000.2R. The NAVAIRSYSCOM Multi-Mission Helicopter HSI Integrated Project Team is currently working on the draft version of this plan.

K. SCHEDULES

1. Installation and Delivery Schedules. Table 12 displays the SH-60R delivery schedule by calendar year and total aircraft to be delivered to that particular activity. The exact aircraft deliveries are not known at this time; therefore, the corresponding line indicates the estimated length of time for each activity to fully transition to the SH-60R helicopter.

TABLE 12 – SH-60R INSTALLATION SCHEDULE

ACTIVITY	CY02	CY03	CY04	CY05	CY06	CY07	CY08	CY09	CY10	CY11
HSL-41	15	—	—	—	—	—				
HSL-43	10	—	—							
HSL-42		14	—	—						
HSL-44			14	—	—					
HSL-40			14	—	—	—				
HSL-45				10	—	—				
HSL-51				12	—					
HSL-46				14	—	—				
HS-10				16	—	—	—	—	—	—
HS-2					4					
HS-3					4	—				
HS-4						4				
HSL-47						10	—			
HSL-49						10	—			
HSL-37						10	—			
HSL-48						14	—			
HS-5							4			
HS-6							4			
HS-7								4		
HS-8									4	
HS-11									4	
HS-14										4
HS-15										4

2. Ready for Operational Use Schedule. The SH-60R will be ready for operational use upon delivery to the Fleet.

3. Time Required to Install at Operational Sites. NA

4. Foreign Military Sales and Other Source Delivery Schedule. NA

5. Training Device and Technical Training Equipment Delivery Schedule. The SH-60R Training System will provide for both operator and maintainer training requirements. All SH-60R Training Devices will be common to the maximum extent with the current training suites and will provide expansion capabilities to all H-60 trainers. These H-60 TDs will utilize a common weapon system architecture and will comply with DoD directives for networking as applicable in their design. Conversion and delivery of TDs will be phased in through the SH-60R delivery schedule.

a. Operator Training Devices. Operator training will utilize a WST and a T/OFT. These devices will integrate full aircraft weapon system functionality of pilot and aircrew stations, provide a flight fidelity visual system, and simulation of the full range of aircraft missions.

(1) Weapon System Trainer. There are currently eight H-60 WSTs. Four of these are SH-60F trainers and four are SH-60B trainers. Under the current SH-60R (and CH-60S) training concept, these trainers will be fully modified to CH-60S/SH-60R WSTs. Once converted they will feature a full flight fidelity capability. The visual system will include a high fidelity day-night image generator databases, and night vision device compatibility. Full weapon system functionality will be provided, including Forward Looking Infra-Red, Hellfire, Aircraft Survivability Equipment, Navigation, Communication, etc., with the cockpit providing full tactile sensations.

(2) Tactical/Operational Flight Trainer. There are currently two H-60 T/OFTs. Both of these are SH-60B trainers. Under the existing SH-60R (and CH-60) training concept, both trainers will be modified to SH-60R/CH-60 T/OFTs. In addition, two more trainers will be purchased for a total of four. These trainers will be non-motion based flight simulators that support pilot and co-pilot tactics, navigation, equipment malfunction, communications, aircrew coordination, and emergency procedures training as applicable. The visual systems will include a high fidelity day-night image generator, databases, and night vision device compatibility. The T/OFT will improve aviation safety by allowing the aircrew to practice emergency procedures and refine their aircrew coordination skills. Table 13 displays the proposed location of the WSTs and T/OFTs and their estimated RFT dates.

TABLE 13 – PROPOSED SH-60R/CH-60 OPERATOR TRAINING DEVICES

ACTIVITY	WST	T/OFT	CONTRACT DATE	RFT DATE	COMMENTS
NAS North Island		5	FY06	FY07	SH-60B TU

TABLE 13 – PROPOSED SH-60R/CH-60 OPERATOR TRAINING DEVICES					
ACTIVITY	**WST**	**T/OFT**	**CONTRACT DATE**	**RFT DATE**	**COMMENTS**
					Conversion
NAF Atsugi		TBD	FY05	FY06	OPNAV FAST Plan
NAS North Island	3		FY00	FY02	SH-60B Conversion
NS Mayport		6	TBD	TBD	SH-60B TU Conversion
NAS North Island	1		FY03	FY04	SH-60B Conversion
NS Mayport	2		FY02	FY03	SH-60B Conversion
NAS North Island	9		TBD	TBD	SH-60F Conversion
NAS Jacksonville	8		FY04	FY05	SH-60F Conversion
NAS North Island	7		FY05	FY06	SH-60F Conversion
NAS Jacksonville	10		TBD	TBD	SH-60F Conversion
NS Mayport	4		FY04	FY05	SH-60B Conversion

b. Maintenance Training Devices. SH-60R maintenance training will utilize numerous maintenance TDs that are associated with the existing SH-60B, SH-60F, and HH-60H training systems. A newly developed CH-60S/SH-60R AMT will consist of simulated fit, form, and feel Contractor-Furnished Equipment with functionality as required to interface with the electronic classroom and IETMs. An IETM diagnostic capability will be included when determined. The AMT will allow students to perform operational tests utilizing psychomotor skills. The AMT will include simulated hardware, a fault testing program, and an Instructor Operating Station. A growth potential will be inherent in the AMT suite that should allow for an increasing number of aircraft components to report fault data. Table 14 displays the proposed H-60 maintenance TDs that will be modified with an estimate of the degree of modification that they will require.

TABLE 14- PROPOSED SH-60R/CH-60 MAINTENANCE TRAINING DEVICES				
	LOCATION			
DEVICE	**MTU 1005**	**MTU 1022**	**MTU 1066**	**COMMENTS**
SH-60B CMT		X (Old 1067)	X	No Modification Required
SH-60B Landing		X	X	No Modification

TABLE 14- PROPOSED SH-60R/CH-60 MAINTENANCE TRAINING DEVICES				
	LOCATION			
DEVICE	**MTU 1005**	**MTU 1022**	**MTU 1066**	**COMMENTS**
Gear/Wheel Brake		(Old 1067)		Required
SH-60B RAST/ Tail Wheel/Hoist Trainer		X (Old 1067)	X	No modification required.
SH-60B Main Rotor Blade/BIM Service Trainer		X (Old 1067)	X	No Modification
SH-60B Starboard Engine Trainer		X	X	No Modification
SH-60B AFCS Trainer		X	X	No Modification
SH-60B AMT		X	X	No Modification
SH-60F CMT	X	X		No Modification Planned
SH-60F Landing Gear Trainer	X	X		Modification Required
SH-60F RAST/ Tail Wheel/Hoist Trainer	X	X		Modification Required
SH-60F Main Rotor Blade/BIM Service Trainer	X	X		No Modification
SH-60F Starboard Engine Trainer	X	X		No Modification
SH-60F AFCS Trainer	X	X		No Modification planned
SH-60F AMT	X	X		No Modification
CH-60S/SH-60R Common Cockpit (AMT) Trainer		X	X	New Manufacture
SH-60F Ordnance System Trainer	X	X		Modification Required

L. GOVERNMENT-FURNISHED EQUIPMENT AND CONTRACTOR-FURNISHED EQUIPMENT TRAINING REQUIREMENTS. NA

M. RELATED NTSPs AND OTHER APPLICABLE DOCUMENTS. Table 15 lists the various documents applicable to the SH-60R acquisition program.

TABLE 15 - RELATED NTSPs AND OTHER DOCUMENTS

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
CH-60 Fleet Combat Support Helicopter	Z-50-0048	PMA299	Initial NTSP May 98
HH-60H Combat SAR/SWS Support Helicopter	A-50-8714B/A	PMA299	Approved Jan 94
Light Airborne Multi-Purpose System (LAMPS) MK III	A-50-7702D/A	PMA299	Approved Feb 93
SH-60F Carrier Inner-Zone ASW Helicopter	A-50-8508D/D	PMA299	Approved Jan 99
AGM-114B/K Hellfire Missile System	A-50-8311A/D	PMA258	Preliminary Draft May 98
AN/ALE-47 Countermeasures Dispensing System	A-50-9001A/A	PMA272	Approved Mar 94
AN/APX-100(V) Transponder Set	A-50-8305B/P	PMA209	Proposed Jan 00
AN/ARC-210(V) Electronic Protection Radio System	A-50-9012C/A	PMA209	Preliminary Draft Mar 98
Ground Proximity Warning System	A-50-8815B/P	PMA209	Proposed Jun 97
AMTCS	Z-50-0046	PMA205	Initial NTSP Feb 98
Navy Consolidated Sonobuoys	A-50-8910B/P	PMA264	Proposed Aug 97

TABLE 15 - RELATED NTSPs AND OTHER DOCUMENTS			
DOCUMENT OR NTSP TITLE	**DOCUMENT OR NTSP NUMBER**	**PDA CODE**	**STATUS**
SH-60R ILSP	AC-ILSP-360	AIR 3.1.2.Q	Draft Apr 95
LAMPS MKIII Block II Upgrade Design Description Document	Lockheed Martin Doc # 187A149A	PMA299	Complete Jul 98

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